CLINICAL STUDY OF UPPER GASTROINTESTINAL ENDOSCOPY IN PATIENTS PRESENTING WITH DYSPHAGIA IN A TERTIARY CARE HOSPITAL

DISSERTATION SUBMITTED FOR

M.S. [GENERAL SURGERY]

APRIL 2017

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DR.M.G.R. MEDICAL UNIVERSITY

CHENNAI,

TAMIL NADU

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"CLINICAL STUDY OF UPPER GASTROINTESTINAL ENDOSCOPY IN PATIENTS PRESENTING WITH DYSPHAGIA IN A TERTIARY CARE HOSPITAL" is a bonafide record work done by **DR.S.DEEPAN KARTHIK** This is to certify that the dissertation entitled under my direct supervision and guidance, submitted to the Tamil nadu DR. M. G. R. MEDICAL UNIVERSITY in partial fulfilment of University regulation for M.S. – GENERAL SURGERY.

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DECLARATION

I solemnly declare that this dissertation titled **"CLINICAL STUDY OF UPPER GASTROINTESTINAL ENDOSCOPY IN PATIENTS PRESENTING WITH DYSPHAGIA IN A TERTIARY CARE HOSPITAL"** submitted by me for the degree of M.S, is the record work carried out by me during the period of 2014-2016 under the guidance of **PROF. DR. S. K. SREETHAR, M.S.** Professor of General Surgery, Department of Surgery , Tirunelveli Medical College, Tirunelveli. The dissertation is submitted to The Tamilnadu Dr. M.G.R. Medical University, Chennai, towards the partial fulfilment of requirements for the award of M.S. Degree GENERAL SURGERY examination to be held in April 2017.

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PRINCIPAL INVESTIGATOR: Dr .S. DEEPAN KARTHICK, MBBS.,D.ORTHO.,

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Dear , Dr.S.Deepan Karthick, MBBS., D.Ortho., The Tirunelveli Medical College Institutional Ethics Committee (TIREC) reviewed and discussed your application during the IEC meeting held on 09.02.15.

THE FOLLOWING DOCUMENTS WERE REVIEWED AND APPROVED

1.	TIREC Application Form	☐
2.	Study Protocol	☐
3.	Department Research Committee Approval	☐
4.	Patient Information Document and Consent Form in English and Vernacular Language	☐
5.	Investigator's Brochure	☐
6.	Proposed Methods for Patient Accrual Proposed	☐
7.	Curriculum Vitae of the Principal Investigator	☐
8.	Insurance /Compensation Policy	☐
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11.	DCGI/DGFT approval	☐
12.	Clinical Trial Agreement (CTA)	☐
13.	Memorandum of Understanding (MOU)/Material Transfer Agreement (MTA)	☐
14.	Clinical Trials Registry-India (CTRI) Registration	☐

THE PROTOCOL IS APPROVED IN IT'S PRESENTED FORM ON THE FOLLOWING CONDITIONS

1. The approval is valid for a period of 2 year/s or duration of project whichever is later
2. The date of commencement of study should be informed
3. A written request should be submitted 3weeks before for renewal / extension of the validity
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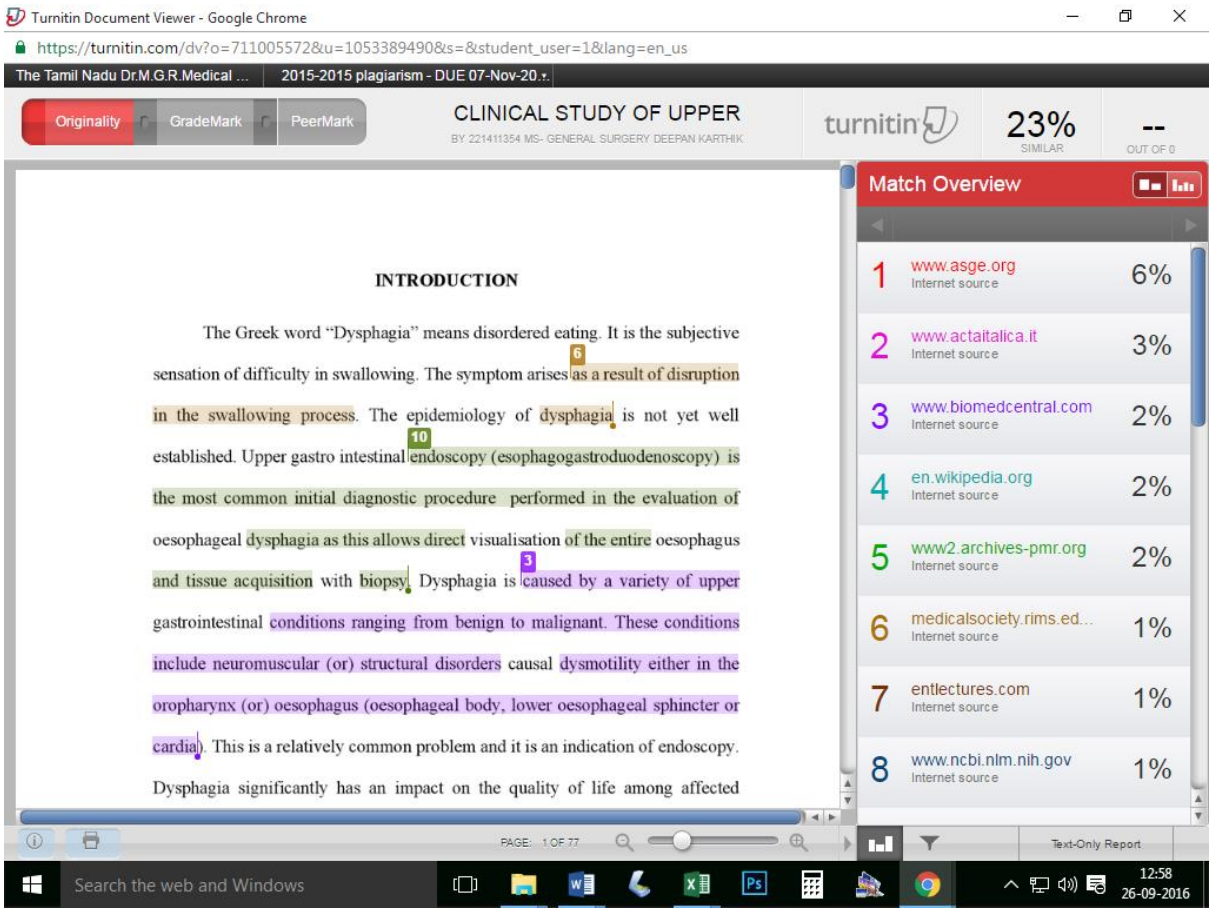
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INTRODUCTION
The Greek word "Dysphagia" means disordered eating. It is the subjective sensation of difficulty in swallowing. The symptom arises as a result of disruption in the swallowing process. The epidemiology of dysphagia is not yet well established. Upper gastro intestinal endoscopy (esophagogastroduodenoscopy) is the most common initial diagnostic procedure performed in the evaluation of oesophageal dysphagia as this allows direct visualisation of the entire oesophagus and tissue acquisition with biopsy. Dysphagia is caused by a variety of upper gastrointestinal conditions ranging from benign to malignant. These conditions include neuromuscular (or) structural disorders causal dysmotility either in the oropharynx (or) oesophagus (oesophageal body, lower oesophageal sphincter or cardia). This is a relatively common problem and it is an indication of endoscopy. Dysphagia significantly has an impact on the quality of life among affected
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CONTENT

INTRODUCTION

The Greek word “Dysphagia” means disordered eating. It is the subjective sensation of difficulty in swallowing. The symptom arises as a result of disruption in the swallowing process. The epidemiology of dysphagia is not yet well established. Upper gastro intestinal endoscopy (esophagogastroduodenoscopy) is the most common initial diagnostic procedure performed in the evaluation of oesophageal dysphagia as this allows direct visualisation of the entire oesophagus and tissue acquisition with biopsy. Dysphagia is caused by a variety of upper gastrointestinal conditions ranging from benign to malignant. These conditions include neuromuscular (or) structural disorders causal dysmotility either in the oropharynx (or) oesophagus (oesophageal body, lower oesophageal sphincter or cardia). This is a relatively common problem and it is an indication of endoscopy. Dysphagia significantly has an impact on the quality of life among affected individuals. Patient develop depression due to panic of anxiety they develop about eating. Endoscopic procedures have become the ‘gold standard’ of diagnosis and therapy in the alimentary tract and are frequently delivered in high volume centers. The panendoscopy will refer to upper gastrointestinal procedure and colonoscopy will refer to lower gastrointestinal procedure.

Epidemiology:

The exact prevalence of dysphagia is not known. It is reported to be 16 % to 22% after the age of 50 Years. The endoscopic finding differ with regards to age, gender, repeat procedure, ethnicity. Males are more likely to undergo repeat endoscopies. There is higher prevalence of stricture, Oesophageal ulcer, suspected malignancies in the age group of above 60 years. Prevalence estimated among all age groups is also uncertain. It is roughly estimated to be 6-9%. The condition affects mainly western population, with one million people suffering from this symptom every year. Most of them are found to have new diagnosis. Prevalence among stroke patients is estimated to be around 29% to 64%. Among various neurological disorders in multiple sclerosis incidence ranges from 24% to 34% and 81% among Parkinson disease.

The prevalence of dysphagia is higher in the elderly than the general population. The prevalence in age > 50 years is estimated to be between 15% and 22%. Irrespective of age, dysphagia is commonly associated with certain disease such as cerebrovascular accident, amyotrophic lateral sclerosis, Parkinson's disease, myasthenia gravis and tardive dyskinesia all of which increase in prevalence with aging.

HISTORY OF ENDOSCOPY:

The greek word endoscopy means to 'look inside' and generically involves an optical instrument being introduced in to your body cavity to allow direct visualisation of any reigion within your body cavity or joint. The procedure has its roots firmly planted in history, with Egyptians the first to practice endoscopy ,

using bamboo reeds illuminated by candles. The father of modern medicine hippocrates was the first to use the proctoscope in 370 BC.

It was not until 1806 that Phillip Bozzini developed the first true endoscope. The 'Lichleiter' or light conductor consisted of various examining tubes coupled with wax candle fashioned in a special holder to provide illumination. Technological advancements , including the invention of the light bulb by Thomas Alva Edison in 1890 and the discovery of glass fibre optics by John Logie Baird in 1928, resulted in considerable progression in the field (Willingham and Brugge , 2009). In 1957 Basil Hirschowitz revolutionised the practice of endoscopy when he developed the first fibre optic endoscope , which was clinically used from the 1960 onwards.

The advances have greatly contributed to the state –of –the-art endoscopic devices available today with modern –day endoscopy using a flexible fibre optic tube with a minute television camera attached to the tip. This allows gastroenterologists to view previously inaccessible parts of the human body. With the advent of video technology, images on a colour monitor allow for superior resolution quality and increased diagnostic accuracy . The dramatic improvements in instrumentation and technique have cemented the role of endoscopy as the 'gold standard' of diagnosis and therapy in gastrointestinal disorders . Consequently , there has been a substantial increase in the volume of procedures performed (Classen, 2010). The 2006 Behavioural Risk Factor Surviellance estimates that approximately 56% of the U.S population over the age of 50 years has had at least one lower gastrointestinal endoscopy in the 10

years.(Singh et al., 2009). A National Health Statistics Report conducted on ambulatory surgery in the United States in 2006 found approximately 9.2 million endoscopic procedures performed of the lower bowel in the United States (Cullen et al ., 2009). In Australia the number of colonoscopies performed during the 2005/2006 period reached nearly 445,000 (21.48 colonoscopies per 1000 people in that year) (St John , 2009).

In recent years ,the increasing demand for greater volume and complexity of endoscopy has resulted in the design of purpose-specific units dedicated to gastrointestinal endoscopy. In the past, endoscopy has typically been carried out within hospital environments, frequently using existing wards and local expertise of general hospital personnel, often without the backup of anaesthetic staff. Endoscopy procedures are more likely to be performed on an outpatient basis at the hospital, in designated hospital day surgical units or day endoscopic units.(Frakes , 2002) . Endoscopic suites are not always associated with an operating theatre and its available resources. As a consequence, the administration of sedative agents and procedural monitoring in endoscopy (Burton et al., 1993). In the United States, approximately 35.8% of endoscopists consider 'day endoscopy centre' as their primary location for performance of endoscopy (Cohen et al., 2006). From the perspective of the anaesthetist however the patient monitoring, resuscitation and availability of anaesthesia personnel, makes the operating room the ideal setting for caring for medically challenging patients.

Endoscopy equipment has become more portable, which makes it possible for endoscopy cases to be conducted in various settings, to suit local system

preference, which may be mutually advantageous to the endoscopist, the anaesthetist and the patient.

History of bowel preparations:

Worldwide figures reveal that colorectal cancer is the third leading cause of cancer related mortalities resulting in approximately 50000 deaths per year [Bianchi et al., 2011]. Thus early detection and then removal of adenomatous polyps is of paramount importance, the early treatment and prevention of colon cancers. Detection of early localised cancer is associated with 90 percent survival rate however this is reduced to 39 percent when metastasis has occurred.

While various screening methods are available, the use of colonoscopic surveillance has emerged as an effective method of detecting colonic polyps and bowel cancer and is considered the gold standard. Poorly prepared bowels can lead to impaired visibility during the examination, increased potential for missed leisions, lengthy procedure time and repeat procedures [Cohen et al,. 2009]

AIMS & OBJECTIVES:

A clinical study of upper gastrointestinal endoscopy in patients presenting with dysphagia, the following are the aims & objective of the study

1. To evaluate the diagnostic potential of endoscopy in patients with dysphagia.
2. To analyse the nature and frequency of various upper gastrointestinal conditions both in benign & malignant conditions.
3. Incidence of malignancy among the patients with dysphagia
4. To study the etiological factors and its association with dysphagia .

MATERIAL AND METHODOLOGY

Patients who were presenting with symptom of dysphagia from the period of Aug-2014 to Aug-2016 in the department of general surgery were included in the study. The patients who presented with complaints of dysphagia to the outpatient department and patients admitted with complaint of dysphagia were evaluated with upper gastro intestinal endoscopy.

Diagnosis is based on the history, clinical findings, and supported by ultrasonography and radiological studies (plain X-Ray).Other investigations and histopathological studies are included in confirming the diagnosis.

Final diagnosis is made with histopathological results. Biopsy is taken wherever necessary. Age, sex distribution and frequency pattern of different causes of dysphagia are recorded and analysed.

Sedation during endoscopy:

Sedation for upper gastrointestinal endoscopy is commonly administered in Australia and the U.S.A while it is possible to perform endoscopic examination in the non sedated patient [Fischer et al., 1988] most patients are not willing to undergo the procedure without sedation. There have been various sedative techniques described which have been administered by either a gastroenterologist or by an anaesthetist. Moderate level of sedation can frequently be achieved by either monotheraphy or by combination use of benzodiazepines, narcotics and propofol. Recent use of propofol has enabled deeper levels of sedation and has been administered safely in all group of patients. Bispecteral index has been used

in anaesthetise patients to quantify the depth of anaesthesia. Muscle twitch causes interference in the non paralysed patients and therefore is not as sensitive in sedated patients. An adequately sedated cooperative patient is preferable to a disinhibited, partially sedated or gagging patient, seen at levels of light sedation. For panendoscopic intubation titration adjustments to deeper levels of sedation is often required. In exceptional situation general anaesthesia may be nessecary when difficulty is encountered at the initial attempts of oesophagogastric intubation

Hypoxia is common in routine pan endoscopy and can be a potentially life threatening complication. This occurs generally in sedated patients however it has also been notice in nonsedated patients , where it is due to the obstruction of the airway by the endoscope. Hence, the adminstration of supplemental oxygen is needed.

A feature of upper endoscopic procedures is the need to successfully negotiate the tip of the endoscope in to the oesophagus without initiating the gag reflex during this process there is a period where the oropharyngeal space has competing interest between the maintanence of airway and ensuring the passage of endoscope. Panendoscopy usually employs an unsecured airway, often without a facemask, with oxygenation via either oral or nasal route

PREPARATION OF PATIENT BEFORE ENDOSCOPY

Endoscopy is usually an outpatient procedure. The patient will go home after the procedure.

1. Patient is kept fasting for 8 hours before the scheduled time. They should not eat or drink anything because food in the upper gastrointestinal tract will block the view and hinder the examination. It can cause vomiting, aspiration and other complications.
2. Patient is withold from aspirin containing medications, any non-steroidal anti-inflammatory drugs before 7 days. Taking such products can increase the risk of bleeding during or after the procedure. Even after the procedure the doctor decides when to restart the medications
3. Patient should not smoke before the procedures.
4. Any medical, cardiac, respiratory problem should be evaluated and treated. Fitness from the specialist, diabetic control should be obtained before performing the procedure.
5. Any previous history of allergic to medications must be enquired
6. Antibiotic prophylactically is administered in indicated cases.
7. Test dose for local anaesthetic agent is given.
8. Any dentures, glasses will be asked to remove before the procedures.

PROCEDURE

The doctor will give you local anaesthetic to numb the throat. This may be a spray or a medication. The 120 cm forward viewing endoscope is preferred for the routine diagnostic endoscopy. Smaller diameter paediatric endoscopes are available for use in small children or patients with strictures.

After adequately preparing the patient and confirming that the equipment is in proper working order, the endoscope tip is lubricated and then inserted directly in to the oesophagus. Intubation is best accomplished under direct vision by advancing the endoscope over the tongue , past the uvula and epiglottis , and then posterior to the cricoarytenoid cartilage on either side. This maneuver will impact the endoscope tip at the cricopharyngeal sphincter , which will relax and allow entry into the cervical esophagus if the patient swallows. Alternatively , the endoscope can be introduced blindly , guiding the tip into the midline of the patients's pharynx with the previously inserted second and third fingers of the left hand. Obviously this latter technique is more dangerous for both patient and endoscopist.

Once in the oesophagus, the instrument is advanced under direct vision to the desired end point (usually the proximal duodenum), taking care to survey the mucosa both during insertion and withdrawal. Inspection is often easier during withdrawal, when the viscera are well distended with air , this is often the best time to pursue detailed examined and sampling of lesions noted during insertion.

The endoscope is advanced to the esophagogastric junction, noting the “z-line” where the white squamocolumnous esophageal mucosa meets the red columnar gastric epithelium. The line should be within 2 cm of diaphragmatic “pink zone”, which marks the diaphragmatic esophageal hiatus. This point can be accentuated by asking the patient to sniff while the area is visualised. Accurately identifying the location of “z-line” and hiatus is important because many subsequent diagnostic or treatment modalities are based on the location of this anatomical landmark. Furthermore ,the “z-line” can often is used to determine if an esophagogastric lesion is from oesophagus or gastric in origin.

After any gastric contents the four gastric walls are surveyed using the combination of tip deflection and shaft rotation, insertion , or withdrawal. The endoscope is next advanced parallel to longitudinal gastric folds along the greater curvature, entry in to the antrum usually requires “cork srewing” around the vertebral column. This affords an end on view of the pylorus, which is approached directly. Passage through the pylorus is usually seen and felt. This manourver is facilated by single handed technique. Entry in to duodenal bulb is recognised by typical granural, pale mucosa. Finally the second part of the duodenum is entered by advancing through superior duodenal angle. Then simultaneously deflecting the tip and rotating the shaft to the right. All areas should be carefully surveyed as the endoscopy is withdrawn. It should be noted that with a forward viewing endoscope in the stomach, it is particularly difficult to visualize the cardia, proximalfundus, and the lesser curvature. Thus when in the antrum, either prior to entering or after withdrawing from duodenal bulb, the endoscope should be retro

flexed by simulataneously flexing the tip up to 180 degree while advancing the shaft. In this position tip can be rotated through 180 degree in either direction to adequately the visualize the cardiac and fundus.In the retroflexed position the endoscope can be withdrawn to more closely inspect the cardia.

Techniques of tissue sampling:

When desired , tissue sampling is most frequently obtained by directed biopsy. These are taken with cupped forceps passed through the endoscopes's therapeutic channel. Ideally , lesions should be biopsied from an "en-face" position . However , spiked biopsy forceps may facilitate biopsy of lesions which must be approached tangentially (eg, esophagus). In either case, the forceps are applied with open jaws; once properly located , they are gently closed and withdrawn. Multiple biopsies should usually be obtained. For ulcers one should biopsy the rim in all four quadrants , as well as the base or ulcer crater. Standard biopsy rarely penetrates the muscularis mucosa Deeper biopsy can be obtained by using the jumbo forceps or with a diathermy snare loop.

Lesions can also be sampled by brush cytology. In this technique , a sleeved brush is passed through the therapeutic channel towards the lesion. Once over the lesion, the brush head is advanced out of the sleeve and rubbed repeatedly over the lesion; the brush is then pulled back into the sleeve and both are withdrawn together. When convenient, the brush head is extended and wiped across several glass slides. These are rapidly fixed and sent for cytologic processing. When using disposable cytology brushes , the brush head should be transacted and dropped into fixative; analysis of this fluid often provides a good cytology specimen.

Various staining techniques are in development to enhance the sensitivity of detecting mucosal abnormalities (chromoendoscopy). Most involve spraying with dyes (eg: methylene blue, indigo carmine, or Congo red) which stain or react with the mucosa . Chromoendoscope requires high-resolution endoscopes with CCD chips containing up to 85,000 pixels which allow detection of minute lesions. These procedures often facilitated by use of high-magnification endoscopes, which have thumb- operated levers or foot-operated pedals that zoom into or out of the magnified view without loss of focus. Using such systems, views can be magnified 50-to 115 fold when viewed on a standard 20 inch monitor.

Complications

Diagnostic upper gastrointestinal endoscope is a safe procedure with complications reported in approximately 0.1% of the cases. Similarly , mortality is exceedingly rare. As alluded to above, cardiopulmonary problems are the most common complications of endoscopy and are attributable to oversedation.

Procedure- related complications are also uncommon following upper gastro-intestinal endoscopy. Perforation is of greatest concern and occurs more frequently following emergency interventions and therapeutic procedures including dilation, sclerotherapy, and thermal haemostasis. When dilating or ablating esophageal lesions with blase, perforation may occur in as many as 10% cases. For clinically stable patients, non surgical treatment of well-contained perforations can be considered. Other unique complications include ulceration and stricture following esophageal sclerotherapy. Finally , local wound infection (including necrotising fasciitis) can occur with PEG tubes, especially if the

incision is too small or the tube is pulled too tightly against the gastric wall leading to gastric necrosis and leaks around the tube. Occasionally, a PEG can separate from the abdominal wall with resultant peritonitis or colonic erosion. In cases of coloenteric or gastrocolonic fistula without peritonitis, the PEG tube should be left in place for several days to allow the fistula tract to mature; the tubes can then be removed . Most low-output colonic fistulae will spontaneously close.

Pneumoperitoneum is sometimes present 1-2 days following PEG tube placement, and is most commonly discovered on chest X-Rays made for unrelated reasons. In these situations, patients are usually asymptomatic. The pneumoperitoneum generally resolves with little intervention beyond bowel rest.

ABSTRACT

Upper gastro intestinal endoscopy is the most common initial diagnostic procedure performed in the evaluation of oesophageal dysphagia as there is direct visualisation of the entire upper Gastrointestinal tract. The common endoscopic finding in patients with dysphagia are well known but the relative prevalence of

these findings has not been repeated. There is entire (or) relatively no data regarding the frequencies of these findings. Flexible fibreoptic endoscopy is being proposed in recent years as a supplementary tool for studying swallowing. There are various advantages of this procedure as it is easy to use, very well tolerated, allows bedside examination and is economic. It also carries certain risk and consequences. The anatomical and motility disorders are evaluated. Dysphagia as an alarming symptom needs to be investigated on an urgent basis to establish an early diagnosis in the course of patient management and to rule out any ongoing serious pathology such as neoplastic process. A detailed medical history and clinical examination is very essential to rule out the obvious cause of dysphagia, especially if these are related to the oropharynx. There are several diagnostic investigations available to evaluate dysphagia including upper gastrointestinal radiography and endoscopy. Most patiens with dysphagia referred to surgical clinics have esophageal causes and therefore an esophagogastroduodenoscopy of upper gastrointestinal tract is an first line examination in these cases.

In this study we evaluate the diagnostic potential of OGD and looked at the nature and frequency of different upper GI conditions benign and malignant diagnosed on index OGD & in a random population of patients referred primarily with dysphagia. Significance of Individual symptoms that formed the basis of referral was studied in relation with histological biopsy.

Patients with malignant tumours of the upper gastrointestinal tract exhibit important alarming symptoms such as dysphagia that warrant clinical investigations. An endoscopic examination will be required in most cases. This

study evaluates the diagnostic potential of index endoscopy in a random population of patients with dysphagia

Clinical evaluation of dysphagia:

From the history of the patient the site lesion (or) the probable diagnosis can be obtained. Carcinoma of oesophagus is occurring commonly in the old age group around 50-70 years. But in infancy the causes commonly associated are oesophageal atresia, dysphagia lusoria and congenital cardiospasm. In children impaction of a foreign body, paralysis of soft palate (ex.diptheria) and acute retropharyngeal abscess . Hysterical spasm in young girls.

In Adult period benign causes like oesophageal stricture occur. Around 30-40 years achalasia cardia & plummer-vinson syndrome may be the cause.

From the sex of the patient certain causes are more pertained to female sex like Patterson - Kelly syndrome (siderophenic dysphagia) occurring almost exclusively in females nearing menopause. Around 40 Years of age group, dysphagia in females is mostly due to siderophenic dysphagia. Achalasia cardia affects preferably females. Carcinoma of oesophagus affects manly men.

The causes of dysphagia can be diagnosed from the mode of onset of dysphagia and the progressive nature of the symptom. Acute dysphagia which is sudden in onset is suggestive of foreign body obstruction (or) acute oesophagitis. A short duration of this difficulty in swallowing for only few month duration in the elderly suggests carcinoma of oesophagus.

A slow onset dysphagia with a long history is suggestive of causes like benign stricture, achalasia cardia, pharyngeal pouch etc. A progressively worsening symptom is typical of carcinoma and stricture . An intermittent dysphagia with episodes of remission is suggestive of spastic conditions like schatzki's ring . Difficulty in swallowing liquid food is typical of achalasia (cardiospasm) . In this condition the weight of solid food helps in overcoming the spasm.

Associated symptoms:

When dysphagia is associated with regurgitation condition like sliding hiatus herinia with stooping (or) straining, achalasia is suspected. When clinically a lump is visible in the neck, which may be emptied with pressure, a pharyngeal pouch is the diagnosis. Dysphagia due to pain in throat (or) chest is a complaint of reflux esophagitis (or) in corrosive strictures . The pain is felt either behind the upper part of sternum (or) behind its lower part.

When a person has vomitus, the amount , reaction, odour and presence of blood will give a clue to the diagnosis. The marked dilatation of oesophagus is associated with conditions which is foul smelling stagnated intra oesophageal contents of 2-3 days old, is due to pharyngeal pouch. Post prandial vomiting is also a complaint of paraoesophageal hernia. This condition also causes hematemesis. Coughing occurring sometimes after intake of meals may be due to regurgitation of food in case of cardiospasm (or) pharyngeal pouch. A malignant lesion of oesophagus and achalasia is associated with loss of weight.

A history of radiations, instrumentation (or) swallowing of corrosive such as acid (or) alkali is seen in stricture oesophagus. History of previous surgery for hiatus hernia with light repair can cause dysphagia.

When bowel symptom accompany rare conditions like chorn's disease of oesophagus occur.

Examination of the patients with dysphagia:

The conditions like malignancy and alchalasia cases significant weight loss and emaciation. The disease like Patterson Kelly / carcinomas of oesophagus and reflux esophagitis causes anaemia. Patterson-Kelly syndrome also cause concave and spoon – shaped nail. The tongue is pale, smooth and devoid of papillae in Patterson Kelly syndrome.

On clinical examination, the tonsil and fauces are examined for any lesion. The mobility of the soft palate is determined. The examination of posterior wall of pharynx is a must to exclude retropharyngeal abscess . An obvious swelling of the enlarged thyroid (or) lymph node can compress upon the pharynx (or) oesophagus to cause dysphagia. A swelling, soft appearing during meals above the left clavicle is a third stage pharyngeal pouch. The swelling causes regurgitation of food into the mouth on applying pressure. An aneurysm of arch of aorta causes "Tracheal Tag" skin. The clinician stands behind the patient and holds the cricoid cartilage with a little traction.

The downward tip can be felt with each throb of the aorta. It must be remembered that if no relevant sign can be elicited on examination of the neck,

one must palpate the left supraclavicular fossa to exclude presence of enlarged lymph nodes which may be the only sign in case of carcinoma of oesophagus. One may get pleural effusion in a late case of oesophageal carcinoma. Aspiration pneumonitis can cause lung abscess, bronchiectasis, haemoptysis in achalasia Cardia. When the esophagus is hugely dilated dyspnoea may be complained of with displacement of adjacent structures. An intra-thoracic hernia sac in case of para oesophgeal Hernia.

An abdominal mass is palpated due to infiltration of oesophageal carcinoma to the upper end of the stomach and enlarged liver due to in carcinoma of the cardia.

In pott's disease, the cause of dysphagia is due to cold abscess pressing on the pharynx (or) oesophagus.

It is important to different oropharyngeal dysphagia from oesophageal dysphagia

Oropharyngeal	Eesophgeal
Trouble getting liquids (or) solids to the back of the throat (or) that food sticks in the back of the throat.	Patient with oesophageal dysphagia most often describe a feeling of food stuck at the sternal notch (or) in the substernal region.

Causes of dysphagia

Conditions in the mouth

Tonsillitis, Quinsy (peritonsilar abscess), stomatitis, carcinoma of the tongue and paralysis of soft palate due to diphtheria in children and bulbar paralysis in adults.

Conditions in the Pharynx:

1. In the lumen - an impaction of a foreign body
   (E.g) coin, tooth and denture)
2. In the wall – acute pharyngitis, malignant growth, hysterical spasm, Paterson – kelly's syndrome.
3. Outside the wall – retropharyngeal abscess, enlarged cervical lymph node, malignant thyroid etc.

   In the oesophagus:

   1. Impaction of foreign body in the lumen
   2. In the wall – atresia of oesophagus
   3. Benign stricture due to reflux oesophagitis, swallowed corrosives, tuberculosis, scleroderma, radiotherapy .
   4. Spasm due to Patterson – Kelly's syndrome, achalasia, webs and rings, diffuse oesophageal spasm etc.
   5. Diverticulum.
   6. Neoplasam.
   7. Neuronal disorders – bulbar paralysis, post – vagotomy.

8. Miscellaneus – Chron's disease .

Conditions outside the wall are malignant (or) any large thyroid swelling , retrosternal goitre, pharyngeal diverticulum. aneurysm of the aortia , mediastinal growth dysphagia lusoria, periesophagitis after vagotomy, hiatus hernia particularly paraesophgeal (type II) and tight oesophageal hiatus repair.

DIFFERENTIAL DIAGNOSIS:

Atresia of oesophagus:

Atresia of the oesophagus with distaltracheo-oesophageal fistula. This is the commonest form of oesophageal atresia occurring in about 90% of patient. The proximal oesophagus ends as a blind tube and the distal oesophagus is joined to the lower part of the trachea with a trachea- oesophageal fistula. During foetal life this condition may be recognized by presence of hydramnios, but this may not be present. The most important clinical presentation is that the infant has an abundance of saliva which may bubble out from the mouth. "Spitting up" or frank vomiting during feeding is a characteristic sign. Aspiration, chocking, cyanosis and respiratory distress are often noticed. The abdomen may be progressively distended. Attempts to push a nasogastric tube will be stopped at the upper mediastinum. When the tip of this tube is radiopaque, straight X-ray is situ can diagnose this condition. Straight X-ray also reveals intestinal gas which indicates communication of distal trachea with distal oesophagus. The greatest risk of this condition is that there is a great possibility of aspiration of gastric, which is highly injurious to the lungs.

Paterson –Kelly syndrome (Plummer –vision syndrome):

This syndrome was first described by Paterson and Kelly in 1919 and subsequently more elaborately described by Plummer and Vision in 1921. The patient is nearly always a middle – aged woman who presents with difficulty in swallowing. Glossitis, anaemia and dysphagia form the important triad of this disease. The tongue becomes devoid of papillae, smooth and pale. The lips and corners of the mouth are often cracked. Hypochromic anaemia is almost always present. The nails become brittle and spoon shaped (Koilonychia). Dysphagia is due to spasm of the circular muscle fibres at the extreme upper portion of the oesophagus. There may be formation of webs. The mucous membrane is hyperkeratotic at places and desquamated at others. This lesion is considered to be pre- cancerous.

Pharyngeal pouch:

It is also called Zenker's diverticulum occurring at the upper end of the oesophagus pro-truding posteriorly through a gap between two parts of the inferior constrictor muscle-i.e. oblique thyropharyngeal part and transverse cricopharyngeal part. It may be considered as a pulsion diverticulum – herniation of the oesophageal mucosa through the weakened area. This driver-ticulum mainly affects subjects over 50 years of age and more frequently men than women.

Regurgitation of undigested food at an unpredictable time or after turning from one side to the other is often the main complaint in the beginning. Sometimes the patients may wake up from sleep with a feeling of suffocation followed by a

severe cough. When the pouch enlarges it tends to compress the oesophagus which leads to dysphagia. When the patient drinks the pouch can be seen to be enlarging with gurgling noise in the neck. X-ray with a very thin barium emulsion should be performed as thick mixture refuses to be washed out from the pouch following examination.

Traction diverticula may be occasionally seen in the middle portion of the oesophagus near tracheal bifurcation. These result from pull of scar tissue from an adjacent inflammatory process, usually tuberculous lymph nodes. These diverticula are often symptomless.

Benign stricture:

The causes of benign stricture have been set out above. Past history must carefully be taken to find out the cause. Difficulty is more with solids than with liquids. X-ray with barium meal will show a long tortuous stricture with some dilatation of the proximal oesophagus and without any shouldering at the proximal end of the stricture.

Peptic stricture:

Patients with peptic strictures may be treated with Maloney,push-type dilators and balloon dilators with similar efficacy. Patients undergoing dilation of peptic strictures should be treated with acid suppressive therapy to prevent stricture recurrence.

Dilatation under fluoroscopic guidance, guidewire assistance (or) direct visualisation is recommended for complex peptic strictures. The degree of

dilatation should be based on the severity of the stricture. The rule of 3 for a bougie dilatation has been accepted but not formally studied for its safety. The initial dilator is selected based on the stricture diameter. This is estimated as approximately the same size as and not more than 1 mm to 2 mm larger than the lumen of the stricture. Sequential dilation is then performed.

After moderate resistance is encountered, typically no greater than 3 consecutive dilators increments of 1mm in a single session. The rule of 3 does not apply to balloon dilation and insufflation of a single, approximately sized balloon dilator should be done. Instrumental dilations f >3 mm may be safe for simple strictures.

Post radiation trictures:

Proximal esophageal strictures is occurring in 2 to 16 % of patient after radiation therapy for head and neck or lung cancer.The majority of the radiation – induced strictures are complex and several lesions of bougie dilatation may be necessary for adequate treatment. Adequate relief of dysphagia is reported in upto 84% patients. A combined antegrade and retrograde approach has been described in case reports and case series for the management of severe radiation induced strictures with complete occlusion of the proximal esophgus. In this technique a standard endoscope (after dilatation) or a small –caliber endoscope is passed via existing gastrostomy tract through the stomach into the oesophagus. The proximal side of the closed lumen is visualised by using a rigid or flexible endoscope by a second endoscopist. Both endoscopes are aligned by using fluoroscopy and transillumination. The stricture is dissected from above and an ERCP guide wire

is passed from below to traverse the stricture . Serial Savary- Gilliard dilators are passed over the guidance until moderate resistence is encountered. A small calliber naso–gastric tube is left in place to maintain patency of the lumen and enable subsequent dilation. The proximal side of the closed lumen is visualised by using a rigid (or) flexible endoscope by a second endoscopist. Both endoscopes are aligned by using fluoroscopy and transillumination.

Recurrent (or) refractory oesophageal strictures:

A refractory or recurrent stricture has been defined as an anatomic restriction due to cicatricial luminal compromise (or) fibrosis that results in dysphagia. There is no endoscopic evidence of inflammation. This may occur as the result of either an inability to successfully dilate the stricture to a diameter of 14 mm over 5 sessions at 2 weeks intervals (refractory) or as a result of inability to maintain a satisfactory luminal diameter for 4 weeks once the target diameter of 14 mm has been achieved. This does not include patient with inflammatory stricture (which will not resolve successfully.)

Achalasia or Cardiospasm:

This represents failure of the lower oesophageal sphincter to relax with deglutition. The number of ganglion cells in the myenteric plexus seems to be diminished. Usually women around 40 years of age are affected. Regurgitation of food even several hours after meal is the main complaint. Dysphagia is more with liquids and less so with solid (weight of the food helps). Complications like pneumonia, bronchiectasis and lung abscess may take place. X –ray with barium

meal will reveal enormous dilatation with smooth termination (smooth pencil – shaped 'bird – beak') and lack of fundal gas in the stomach.

Diffuse oesophageal spasm:

The aetiology of this condition is not known and the patients usually complain of chest pain and dysphagia due to repeatitive and high – amplitude oesophageal contractions. Some sort of emotional stress and anxiety ate often associated with along chest pain and dysphagia. There is also regurgitation of food, through many patients experience regurgitation of intraoesophageal saliva during oesophageal colic. Ingestion of cold liquids and food aggravate the condition. Irritable bowel syndrome, pylorospasm, peptic ulcer disease, gallstone and pancreatitis may stimulate diffuse oesophageal spasm. Oesophageal manometry has been considered the ultimate test in the diagnosis of this condition.

Scleroderma:

Oesophageal Motor Disturbances Occur in Scleroderma or Systemic Sclerosis. This is due to fibrous replacement of oesophageal smooth muscle and then the distal oesophagus loses its tone and normal response to swallowing and gastro – oesophageal reflux occurs. In distal 2/3rds or 3/4ths of the oesophagus normal peristalsis gives way to weak nonpropulsive contractions.

Diverticula of oesophagus:

Oesophageal diverticula are epithelial – lined mucosal pouches that protrude from the oesophageal lumen. All of them are acquired and occur mainly in adults. These commonly occur at 3 separate sites –

I. at its most upper part at the pharyngo-oesophageal junction and is known a pharyngo-oesophageal diverticulum or pharyngeal pouch which has been discussed above.

II. Para– bronchial or midoesophagal near the bifurcation of the trachea

III. Epiphrenic or supradiaphragmatic which arises from the distal oesophagus.

PARABRONCHIAL OR MIDOESOPHAGEAL DIVERTICULUM:

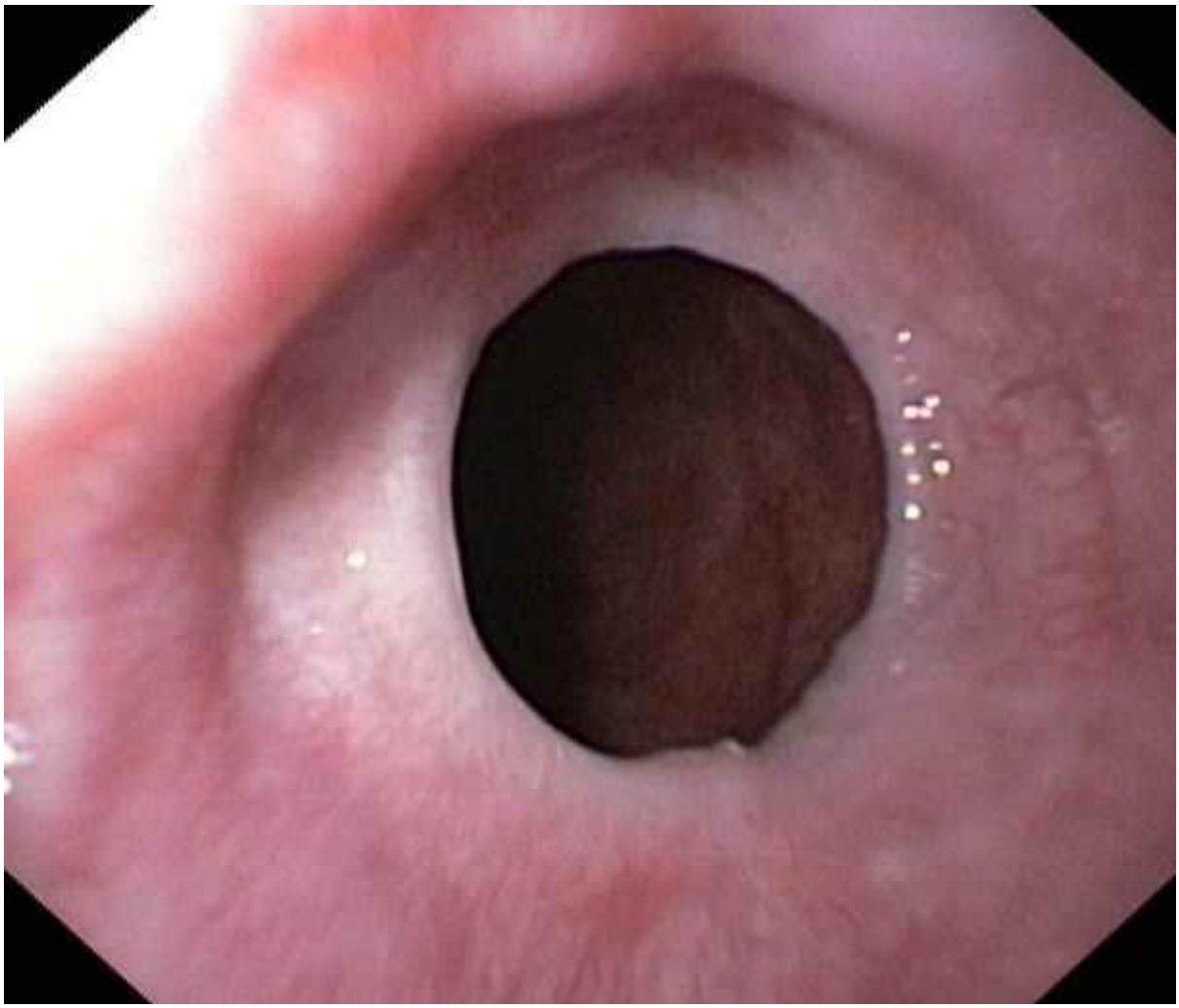
This is a traction diverticulum which comes out from the midoesophagus and is in fact a true diverticulum. This occurs in association with tuberculosis or histoplasmosis of the subcarina and parabronchial lymph nodes to which this diverticulum becomes adherent. This condition rarely causes symptom and is discovered accidentally on barium oesophagogram.

EPIPHRENIC DIVERTICULUM

Occurs Within the distal 4 inches of the oesophagus and is a pulsion diverticulum same as pharyngeal pouch. This is due to oesophageal motor dysfunction of the distal oesophagus leading to mechanical distal obstruction. An abnormal elevation of intraluminal pressure occurs and this blows out the mucosa and submucosa of the oesophagus through its muscles. Many patients may remain asymptomatic though dysphagia, regurgitation and retrosternal pain are the main symptoms. This condition is diagnosed by barium oesophagogram, though oesophageal manometry should be performed to identify the exact motor disturbance.

Webs and rings:

Membranous or partially fibrous structures extending across the lumen of the oesophagus and thus constricting the type web is seen in the upper oesophagus. A lower oesophageal ring (Schatzki's ring) has been found with increasing frequency in patients with hiatus hernia. It is generally located at the oesophagogastric junction and has squamous epithelium on one side, gastric mucosa on the other side and fibrous tissues in the centre. Dysphagia to solid food occurs when the diameter of the lumen is under 13 mm. Careful X-ray examination contrast will define the level of the web or ring.



Schatzki's ring:

Dilatation with a single large (16mm to 20 mm) dilator leads to rupture of scatzki ring,and symptomatic relief in almost all patients. Adjunctive methods that have been used with dilatation are electrocautery incision with a needle-knife papillotome and 4- quadrant biopsies of the ring. Several studies have reported an association of endocopy.

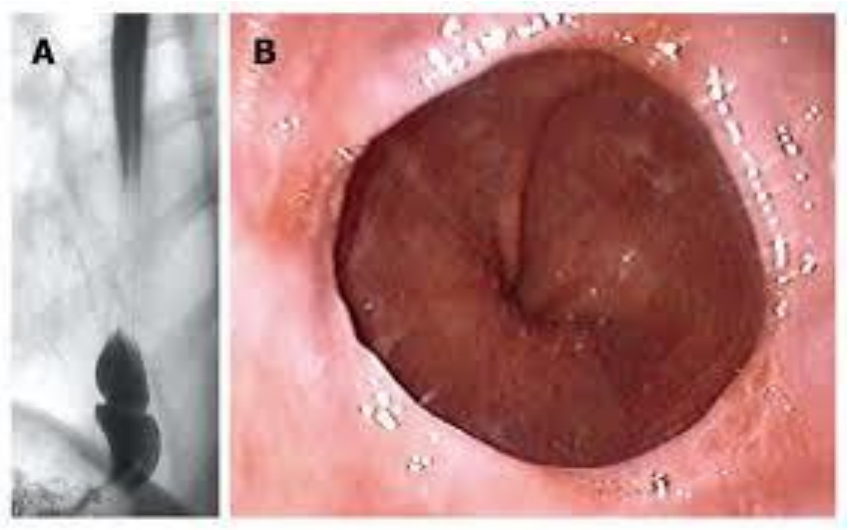


Figure 1schatzki,s ring

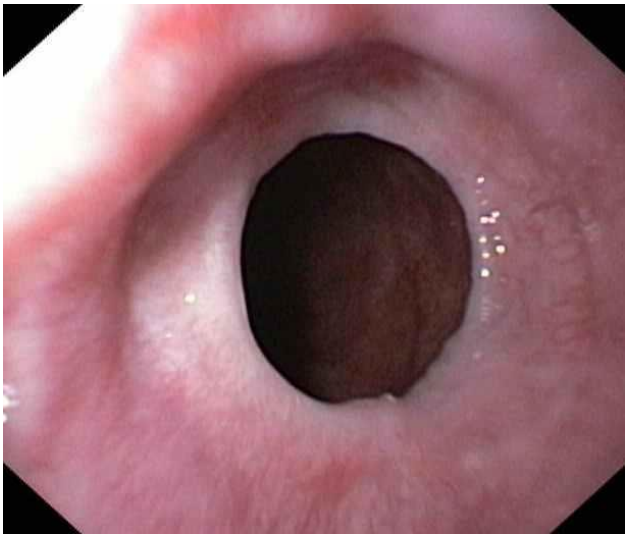


Figure 2esophageal webs

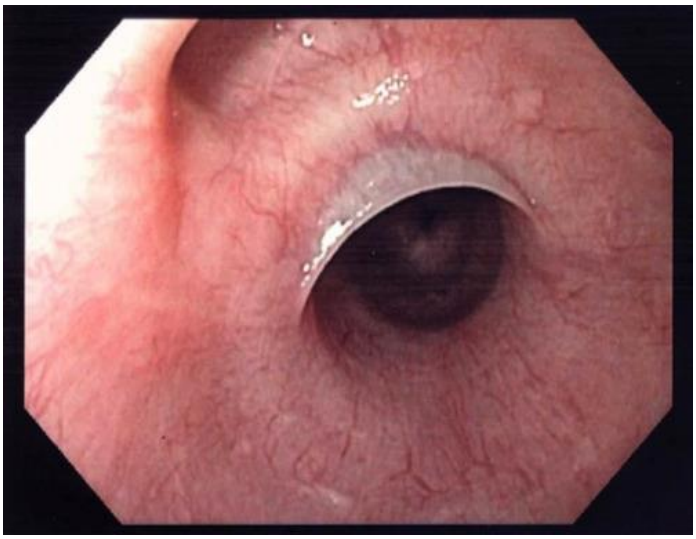


Figure 3esophageal web

If a scatzki's ring cannot be distinguished from a peptic stricture, graded stepwise dilation is recommended . A peptic stricture is a smooth, concentric fixed narrowing most commonly seen in the lower oesophagus , which may occur in the presence or absence of oesophagitis.

In contrast, a schatzki's ring is a diaphragm like web that is located at the squamo-columnar junction and usually marks the the proximal margin of a hiatus

hernia . This is best detected on a barium swallow because it may disappear with air insufflations at endoscopy.

Similar to patient with peptic stricture , patients with schatzki's ring may present with recurrent symptoms and require repeated dilatation.

Carcinoma of oesophagus:

It should be suspected when a man above 40 years complains of heaviness or oppression behind the sternum at the time of meals. Pain is conspicuous by its absence. Indeed, the main complaint is dysphagia may be eased out temporarily. Difficulty is first felt with solid and then with liquid. Unfortunately, the patient fails to report in the early stage and majority of them come to the surgical clinic when they are feeling difficulty in swallowing semisolids. By this time 3/4 of the circumference had been involved. Pseudo – vomiting (i.e) regurgitation of food is often seen. Regurgitated material is usually alkaline mixed with saliva and streaked with blood from malignant growth. Anorexia is another symptom but more often seen in growths at the lower end of the oesophagus. Barium meal X-ray is confirmatory (see 'Radiography with barium meal' under 'special Investigations'), but too much stress should not be given on negative results. By oesophagoscopy one will be able to see the growth and to take biopsy from it. Exfoliative cytology from oesophageal lavage may clinch the diagnosis very early even when radiology has not been positive. In late stages pressure on recurrent laryngeal nerve may cause hoarseness of voice or erosion of bronchus may lead to broncho- oesophageal fistula. Erosion of aorta, though very rate, is a fatal complication.

Figure 4esophageal adenocarcinoma

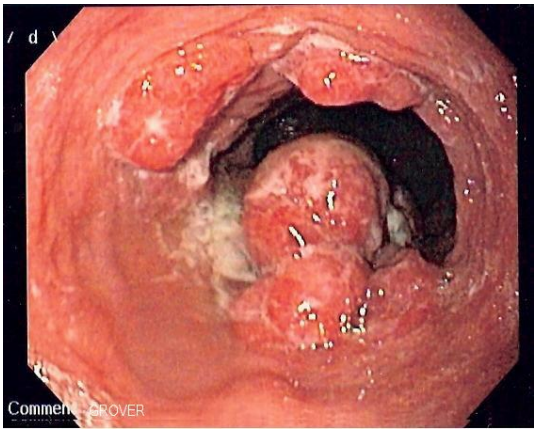


Figure 5esophageal ca.middle 1/3rd

Figure 6esophageal ca.lower 1/3rd

Paraoesophageal hiatus hernia:

In this condition the oesophagus remains in its normal position, but a paraoesophageal hernia occurs alongside the oesophagus through the oesophageal hiatus. Usually a part of stomach herniates. This condition may remain symptomless. If symptoms occur these are usually fullness after meals, early satiety and post–prandial vomiting. Dysphagia is another important symptom. Gastro – oesophageal reflux, which is a very common occurrence in sliding or axial or type I hiatus hernia, does not take place in this condition.

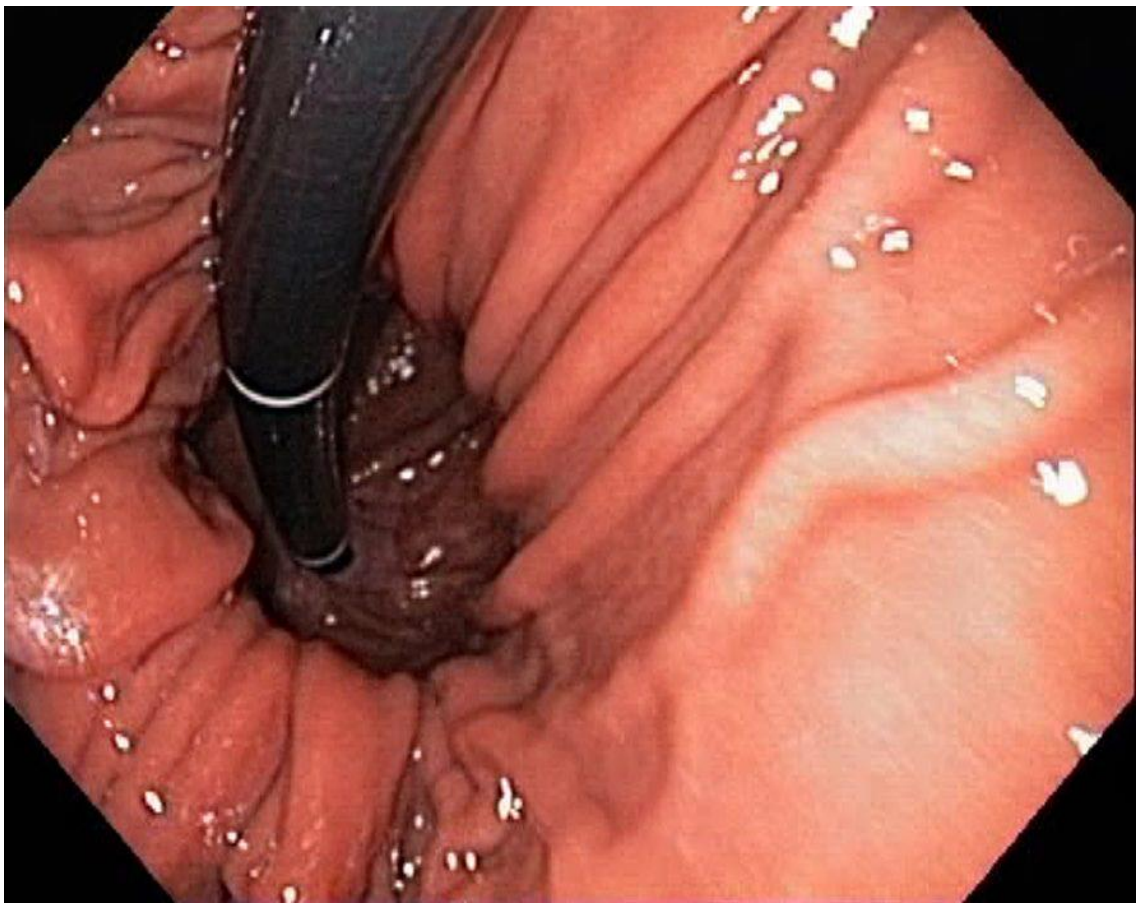


Figure 7esophageal hiatus hernia

Dysphagia lusoria:

During development of the aortic arch if the proximal portion of the right fourth arch disappears instead of the distal portion, the right subclavian artery will arise as the last branch of the aortic arch and then it courses behind the oesophagus (or in rare instances in front of the oesophagus between the oesophagus and the trachea or in front of the trachea) to supply the right arm. Due to its courses it presses on the oesophagus to cause dysphagia which is known as 'dysphagial lusoria' and it was first recognized by Bayford in 1974.

Gastro – oesophageal reflux:

Slight amount of regurgitation of gastric contents into the oesophagus after a large meal is not uncommon. It is only when reflux occurs with increased frequency and at times when the stomach is not distended that pathologic gastro-oesophageal reflux is considered. The symptoms of this reflux are heart –burn and regurgitation aggravated by postural change. These are associated with dysphagia, substernal chest pain, sensation of something sticking in the throat and bleeding. Reflux of gastric contents irritates the oesophagus causing secondary muscle spasm along with inflammation of the mucosa leading to fibrosis and stricture.

Endoscopy in dysphagia

Upper gastro intestinal endoscopy is a procedure in which an endoscope – a long flexible tube with a camera to see the lining of the mucosal tract . A gastroenterologist, surgeon or other trained health care provider performs the

procedure. Most often this procedure is perfomed after light sedation . It is also called as esophagogastroduodenoscopy.

Indications of endoscopy:

1. Abdominal symptoms not responsive to appropriate medical treatment.
2. Abdominal symptoms with constitutional changes .eg weight loss ,early satiety.
3. Abdominal symptoms in age group >45 years.
4. Odynophagia /dysphagia.
5. Gastroesophageal reflux disease not responsive to medical therapy.
6. Nausea and vomiting.
7. Familial adenomatous polyposis syndrome.
8. Confirmation and tissue sampling of radiologist's findings. (eg.strictures ,ulcers).
9. Acute gastrointestinal bleeding and treatment.
10. Chronic gastrointestinal bleeding with normal colonoscopy.
11. Tissue or fluid sampling.
12. Document or to treat oesophageal and gastric varices.
13. Assess oesophageal or gastric injury.
14. Removal of foreign bodies.
15. Enteral access procedures.
16. Management of achlasia and benign and malignant stenosis.
17. Abnormal or inconclusive radiographic findings are also indications for endoscopy.

18. Follow up evaluations for ulcers or surveillance for patients with barrets esophagus are also indications.

Contraindications to the use of endoscopy:

1.Lack of functioning equipment .

2.Lack of trained endoscopists.

3.Patient refusal.

4.Cases in whom perforation due to caustic chemicals are ingested.

OGD should be postponed till the risk of perforation is reduced.

5.Coagulopathy,thrombocytopenia or recent use of ANTICOAGULANT.

5.Haemoglobin < 8 mg.

6.Age less than 13.

Pateint preparation:

Upper gastrointestinal endoscopy usually does not require extensive preparation. Patient should be fasted for atleast six to eight hours prior to the examination. When esophageal or gastric outlet obstruction is suspected even more hours of fasting is required. In cases of GOO a large bore tube for esophageal aspiration or gastric lavage is passed pre procedural. Patient should be examined for loose tooth and use of artificial dentures.If patient is fitted with artificial dentures it should be removed. If any intervention is anticipated , a recent coagulation profile and platelet count should be done. The procedure is performed

when the values are within safer range. Prophylactic antibiotics are rarely indicated.

Indications for prophylactic antibiotic before study:

1.Performance of esophageal sclerotherapy.

2.Dilatation in patients with prosthetic heart valves.

3.Previous endocarditis.

4.Systemic pulmonary shunts.

5.Recent vascular prosthesis.

6.Percutaneous endoscopic gastrostomy (PEG)

7.Tube placement.

Intravenous cephalosporins administered prior to the procedure decrease the rate of skin infections. Many endoscopists spray topical pharyngeal anaesthesia onto the posterior pharyngeal wall in order to suppress the gag reflux. The use of small –diameter endoscope is particularly helpful if minimal (or) no intravenous sedation is used.

Position of the patient:

The patient is usually in the left lateral decubitus position ,with the head slightly elevated on a pillow. For PEG tube placements, the patient should be in the supine (or) semi-fowler,s position. Once the patient is properly positioned and monitory devices are in place , sedation is administered as needed.

Interventional Endoscopy:

Interventional endoscopy implies that the endoscopy includes some kind of surgical treatment. The development of new instruments and the gathering of new endoscopic skills allow more advanced endoscopic surgical procedures. An increasing palette of complications is therefore to be expected but, compared to the alternative surgical procedures , the number and severity of complications is probably less and the endoscopic procedure leave no visible scars, except when specific complications occur. Identification of different complications and most importantly avoiding them or making them less severe is of utmost clinical importance.

There are many interventional procedures. A very few common endoscopic interventional procedures are as follows:

1. Insertion of self- expanding metal stents (SEMS) for palliation of in-operable malignant esophageal carcinoma.
2. Endoscopic retrograde cholangio pancreatography (ERCP) which is used to investigate and treat problems in the bile duct (or) the pancreatic duct.
3. Insertion of percutaneous endoscopic gastrostomy (PEG) catheter , performed mainly for nutritional reasons.

Procedures for malignant strictures

1. Oesophageal dilation using weighted push type polyvinyl with grinded dilation balloon dilators is used.

2. Positive measure like oesophageal stenting .
3. Staging of malignancy with endoscopy.

REWIEW OF LITERATURE

According to the (ASHA) American speech large Hearing Association, a clinical and instrument evaluation of swallowing must reveal, organic and functional alterations of the structures invovled, the degree of efficacy of swallowing in to various stages. Adequate protection of airways and coordination between breathing and swallowing and furthermore should detect and quantify any penetration of foodin to trachea-bronchial passage

The diagnostic tools used for studying dysphagia should also be able to assess the various oro- pharyngeal – oesophageal movements that take place during swallowing in relationship to the type of bolus administered, as well as compensation postures and manuoveres.

This instrumental method is currently considered the 'goldstandard' for studying swallowing is videofluoroscopy which permits real time investigation of all stages during swallowing. For a clinical definition of dysphagia, video endoscopy, scintigraphy, ultrasound for studying the oral stage and PH manometry for investigating functional alterations in the oesophagus is necessary.

When performing dynamic studies on swallowing with fluroscopy water soluble bolus of different consistency may be admistered. The any penetration of blows in to the airway is not a true risk for bronchopulmonary infections.

Endoscopy is well tolerated and easy to perform. The various complications which can result while performing endoscopy are easy to control such as discomfort, gag up, vomiting, vaso – vagal syncope, anterior / posterior

epistaxis.The relative literature shows that the result obtained with is duo videofluoroscopy and videoendoscopy correlate well in the detection of pathological aspect.

Advantages	Disadvantages
Only slightly invasive Easy to perform possible bedside examination	Swallowing white out No quantification of bolus on heled
Can be repeated Economic	
Investigates motor component	
Good estimate of stagnation	
Investigates sensory component	
Penetration of bolus into airways can be Seen	

The main positions are recommended for the tip of endoscope, naso-pharyngeal, upper position and lower position. In the upper position (with the endoscope next to the velum palati) it is possible to detect stagnation of secretion in the glossoepiglottic valleculli, the pyriform recces, the interarytenoid arch and the laryngeal vestibule.

The lower position (the endoscope is placed at the laryngeal aditus) is the most appropriate with which to study the laryngeal sphincter function which can be tested by simply asking the patient to cough, swallow saliva and carry out a Valsalva maneuverer.

Static evaluation of morphology and function of the upper airway and upper digestrive tract is followed by a dynamic evaluation of swallowing, administering a bolus to the patient. The presence of abundant secretion in the laryngeal vestibule (or) a non – productive cough (coloured with methylene blue) so that it is cosier to see any liquid predating the lower airways.

Discomfort has been supported as the most frequent adverse effect, but the use of tropical anaesthesia may reduce the occurrence, however possible affects the swallowing mechanisms.

Informed consent for endoscopy

The physician has an ethical responsibility to obtain the patients consent prior to any treatment (or) procedure. Endoscopy is a invasive diagnostic procedure during which complications may occur, some more frequent and with limited medical consequences.

Complications of endoscopy

1. Discomfort during the procedure
2. Gagging /vomiting
3. Laceration of mucosa
4. Vasovagal episodes
5. Adverse reaction to topical Anaesthetist agents
6. Laryrgospasm.

Physiology of swallowing:

Swallowing is sometimes called deglutition in the scientific contexts, is the process in human body that makes something to pass from the mouth to pharynx and in to epiglottis. Swallowing is an important part of eating and drinking, if the process fails and the materials goes through the trachea then chocking or pulmonary aspiration occurs .In human body automatic temporary closing of the epiglottis is controlled by the swallowing reflex.

Coordination and control:

Eating and swallowing are complex neuromuscular activities which consists of three phases oral, pharyngeal, oesophageal phase.The oral phase which is entirely voluntary is controlled by the medial temporal lobes of the limbic system and the cerebral cortex.

PHASES:

Oral phase:

Prior to oral phase the mandible depresses and lips abduct to allow the food or liquid in to the oral cavity. Upon entering the mouth mandible elevates and lips adduct to assist in the oral containment of food and liquid. The following stages describe the normal and necessary actions to form bolus, which is defined as the state of food in which it is ready to be swallowed.

Pharyngeal phase:

For the pharyngeal phase to work properly all the egress from the pharynx must be occluded - this includes the nasopharynx and the larynx. When the pharyngeal phase begins, other activities like chewing, breathing, coughing, swallowing are temporarily inhibited.

Oesophageal phase:

Like pharyngeal phase oesophageal phase is under involuntary neuromuscular control. However, propagation of food bolus is significantly lower than pharynx.

It is shortest phase of swallowing but is the most complex.

In this phase, the soft palate elevates closing off the nasopharynx and preventing nasopharyngeal registering. Bolus propulsion is enhanced by passive and active dilatation of the upper oesophageal sphincter (of which the cricopharygeus is a part). The cricopharynges and inferior constrictor muscles

then allow food to pass into the upper oesophagus. The upper oesophageal sphincter relaxes during the pharyngeal phase of swallowing.

The swallow reflex is a complex neuralgic event in participation of high cortical centres, brain stem centre such as the tract of the nucleus solitaries and nucleus ambiguous and cranial nerves V, VII, IX, X, XII.

REWIEW OF LITERATURE:

The American society of speech and history association specific the use of instrumental technology to cognise and tract disposer of commination and swallowing.

Most recently licensure laws in California (2002) New Jersey (2005) have been amended to include specific language about SLPS using endoscopy to evaluate swallowing disorders.

Article on Dysphagia October 2001 by Dysphagia Research society. Proposes flexible fiberoptic endoscopy for diagnosing and treating swallowing disorders in patients.

Article published in journal -current opinion in otolaryngology and head neck surgery:

Flexible fiber optic endoscopy for swallowing evaluation was conducted in the patients with dysphagia. This prospective cohort study was conducted on 32 adults with dysphagia. Serial fiberoptic study was performed 3 to 6 times in each subject to detect objectively. Pharyngeal phage dysphagia aspiration, risk of aspiration and to provide information for recommendations about oral feeds status and therapeutic intervention. In all subject serial fees detected pharyngeal phase dysphagia aspiration and aspiration risk. This enabled determination of initial feeds status nil per oral or not. The finally when successful oral feeds is resumed and bolus consistencies to age for.

Guidelines for appropriate view of endoscopy were proposed by American society for gastrointestinal Endoscopy. These guidelines are intended to be an educational device providing information which assist endoscopists in providing are to the patient.

The Role of Endoscopy in the evaluation of Dysphasia:

Endoscopy is necessary and indicated in patients with dysphasia to diagnose wide etiology, exclude malignant and premalignant conditions, assess the need for therapy and for doing procedures when indicated such as dilatation. Oesophageal dilatation is performed as a therapeutic procedure in certain cases of dysphagia. It provides immediate symptomatic relief of dysphagia. In contrast motility disorders may not respond to dilation (eg) achalasia cardia. This diagnostic yield of OGD is 54% in the initial evaluation of patients aged > 40 years who presents with dysphagia, odynophagia concomitant heart burn and Weight loss, this procedure is more cost active than an diagnostic approach with barium swallow for patient suggests of benign oesophageal obstruction. Whenever a malignancy is suspected, biopsy specimen is obtained. Biopsy must be obtained, biopsy must be obtained from the proximal and distal oesophagus to evaluate for oesophageal erosions, when there is absence of typical endoscopic finds without oesophageal mechanical obstruction.

There is no additional risk of perforation when mucous biopsies performed in conjunction with dilation and retro flexion of the endoscope before dilation during evaluation of malignancy (or) rugosities in the gastric cardiac is an important part of the examination and one of the quality indicator of ECG.

Oesophageal liminal diameter of < 13 mm results in dysphagia. Adults tolerate modified feet at a oesophageal luminal diameter of 154 mm and a regular diet at an oesophageal luminal diameter of 18mm.

Oesophageal strictures:

Oesophageal strictures is classified as simple (or) complex according to the diameter of oesophageal lumen and associated anatomic abnormalities. A simple stricture is defined as a short stricture with a symmetric (or) concentric lumen of diameter $\geq$ 12mm that is normally traversed easily with an endoscopy. A complex stricture is longer > 2 cm in length irregular with a diameter $\leq$12mm.There may be a large hiatal hernia, oesophageal diverticula, tracheoesophageal fistula associated with. It is associated with a higher rate and an increased risk for dilatation related adverse effects. The severity of a stricture is estimated by the resistance encountered with passage of fiberoptic endoscopy. The diagnostic endoscopy has an stromal diameter of 9 mm.

Mild Stricture - No resistance

Moderate Stricture - Increased resistance

Severe Stricture - Not traversable

Barium meal radiography can be use to objectively measure the diameter of a stricture, maximal size of barium tablet when passed through the lumen can also dilineate a Stricture.

Patients with oesophageal cancer and extrinsic compression present a challenge to the endoscopy. Only a short term symptomatic relief is provided by dilation in case of malignant stricture . Dysphagia due to extrinsic compression of the esophagus responds poorly to oesophageal dilation.

Common endoscopy findings of oesophageal dysphagia :

1. Begin peptic stricture
2. Schatzki ring / oesophageal web
3. Eosnophilic esophagitis (caustic injury)
4. Anastomotic stricture (Radiation injury)
5. Post endoscopes therapy Stricture
6. Congenital oesophageal abnormalities
7. Cricopharngeal bar
8. Malignant etiology – Oesophageal adenoma
9. Squamous cell carcinoma
10. Pesudoachalsia
11. Extrinsic compression
12. Motility disorders
13. Oesophageal spasm

Serial fibre –optic endoscopic evaluation in the management of patients with dysphagia:

In a prospective cohort study on 32 adults with dysphagia, serial FEES was performed 3 to 6 times in each subject to detect objectively pharyngeal phase dysphagia , aspiration, aspiration risk and to provide information for recommendations regarding oral feeding status and therapeutic intervention. In all subject serial FEES detected pharyngeal phase dysphagia , aspiration, and aspiration risk and enabled determination of initial feeding status (nil per oral or per- oral) ,when to resume successful oral feeding and what bolus consistencies to be used for optimal swallowing success. Timely serial FEES allowed 69% subjects to resume an oral diet as easy and safely as possible.

The conclusion of the study was no subjects who resumed an oral diet based on results of FEES developed an aspiration pneumonia . Serial FEES ,therefore enabled feeding status to be successful and efficiently ,changed from NPO to PO with no adverse healthy outcome. FEES was an efficient procedure with regard to appointment scheduling , transportation ,patient issues and personal requirements.

Article published in journal current opinion in otolaryngology & Head &Neck surgery:

Flexible endoscopic examinations of swallowing is essential & more widely used to evaluate patients with oropharyngeal dysphagia . There are various researches regarding the efficacy of this procedure as compared with the

videofluoroscopy procedure. A recent evidence – based review of this field threw some long-held finding into question and has stimulated a surge of new research studying the sensitivity of the two instrumental examination, healthy outcome of patients who received each procedure and a look at different patient outcome. A randomised control trial has directly compared outcomes of patients given a fluoroscopy versus a fibre-optic endoscopic evaluation of swallowing (FEES) examination.

Complications of FEES:

1.Discomfort.

2.Gagging or vomiting.

3.Laceration of mucosa.

4.Vasovagal episodes.

5. Adverse reactions to topical anaesthetic agents.

6. Laryngospasm.

Flexible fibre-optic endoscopy is being proposed in recent years as a supplementary tool for studying swallowing . There are various advantages it offers like , easy to use, very well tolerated, allows bedside examination and is economic. Neverthless , this diagnostic procedure has risk and consequences. The patient must be informed and consent obtained.

A prospective cross –sectional study at a tertiary care centre at north-eastern india:

The Varadaj Shyam et al study performed upper gastro intestinal endoscopy as the initial test to evaluate dysphagia n 1649 patients with dysphagia. (mean age 56.7 years., M:F -3:2. Abnormal findings at endoscopy were found in 70% of the patients and a major pathology was seen in 54%. Cancer was found in 4% of the patients. The outcome was predicted in terms of gender, age and weight loss. The esophagus was normal n 29% of patients. They concluded that the upper gastro intestinal endoscopy is an effective and appropriate tool for the initial evaluation of patients presenting with dysphagia.

Nafees A Qureshi et al reported esophagus was abnormal in 678 cases.(74%) and biopsies were taken in 428 patients. (47%). Superficial esophagitis , barrett's esophagus, esophageal cancer and esophageal ulcer were the main histological findings.

Gupta et al reported in a survey of 100 consecutive endoscopies on elderly patients with suspective obstructive dysphagia. Seventy eight patients had positive findings. Benign stricture of the esophagus was the commonest finding. Fifteen patients had upper gastro intestinal malignancy (12 were esophageal carcinoma and three stomach malignancy). Six patients with negative endoscopies. Malignany of the GI tract was the commonest cause of dysphagia. The most common was esophageal carcinoma ,second gastro esophageal junction. In 20 patients superficial esophagitis and 10 patients corrosive stricture were noted. In 8 patients gastro esophageal reflux disease ,in 5 patients grade 3 or 4 esophageal

varices noted. In 3 patients achalasia cardia noted. The high prevalence of upper GI malignancy is partly attributed to the different life style and food habits of the people.

RK PHUTAN et al in a study reported 3720 cases of all types cancer and of all the types 590 were newly detected cancer of the esophagus over a two year study period. Betel nut chewing with or without tobacco has been shown to independently associated with the development of esophageal cancer in assam. There are clear dose related response that indicate a causal effect. The limitation of the study was as it was a cross-sectional study to know the various causes of dysphagia and not really ascertaining the exact prevalence of esophageal carcinoma.

The conclusion of the study was esophageal carcinoma ,followed by stomach and oropharyngeal carcinoma are the commom causes of dysphagia in the north eastern region of the country.

STATISTICAL ANALYSIS

The study dysphagia subjects were described according to their age, gender and occupation in terms of proportions. The incidence was analyzed with reference to their age and interpreted between the genders by student "t" test. Similarly the age at incidence according to their occupation was analyzed and interpreted by Analysis of Variance (ANOVA) and the correlated demographical variables with incidence was analyzed and interpreted by χ^2 (Chi-square) test. The above statistical procedures were performed with the help of the statistical package namely IBM SPSS statistics-20. The P values less than or equal to 0.05 ($P \leq 0.05$) were treated as statistically significant.

RESULTS

The incidences of dysphagia were analyzed and interpreted according to the demographic and habitual characteristics of study subjects. The demographic characteristics were age, gender and occupation. The habitual characteristics were smoking, alcohol and betel sewing.

Table-1: Incidence of dysphagia according to the age of subjects:

Age group	Frequency	%	'Z'	Sig	Age (years)	
					Mean	SD
30-59	35	47.9	0.815	P>0.05	46.7	7.4
60-79	59	52.1			64.8	4.6
Total	94	100.0			56.2	10.9

The above table -1 of this study states the incidences of dysphagia according to the ages. The incidence among the adult subjects of 30-59 years was 47.9% and the geriatric subjects 52.1%. The difference of proportions was not statistically significant (P>0.05). The mean age of the adult subjects was 46.7±7.4 years and the same of the geriatrics subjects was 64.8 ±4.6 years. The total mean age of the dysphagia subjects was 56.2±10.9 years with a range of 31-78 years.

: Incidence of dysphagia according to the age of subjects:

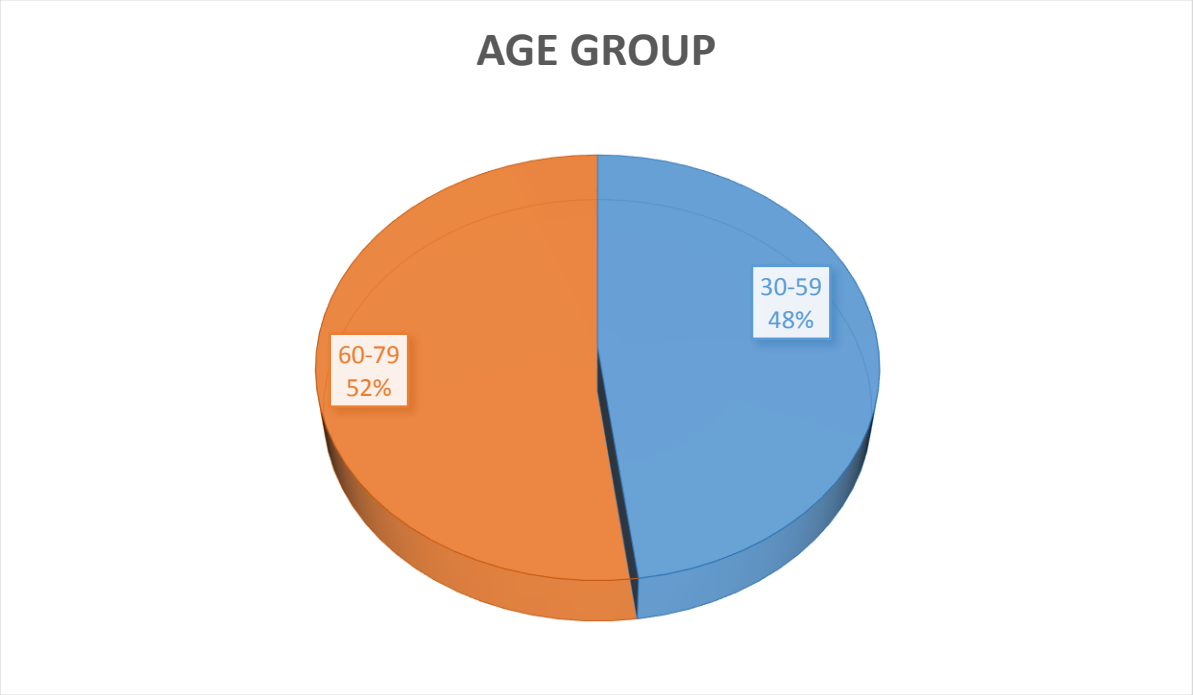


Table-2: Incidence of dysphagia according to the gender of subjects:

Gender	No	%	'Z'	Sig	Age (years)		Difference b/w means	Sig
					Mean	SD		t=1.248
Male	67	71.3	9.195	P<0.001	57.1	11.3	3.1	df= 92
Female	27	28.3			54.0	9.7		P>0.05
Total	94	100.0			56.2	10.9	Range= 31-78 years	

In this study incidence of dysphagia between the genders was stated in the above table-2. The incidence of the male and female was 71.3% and 28.3% respectively. The incidence between the gender was statistically very highly significant (P<0.001). The mean age of male and female was 57.1±11.3 years and 54.0±9.7 years respectively. The difference between the mean age was not statistically significant (P>0.05).

Incidence of dysphagia according to the gender of subjects:

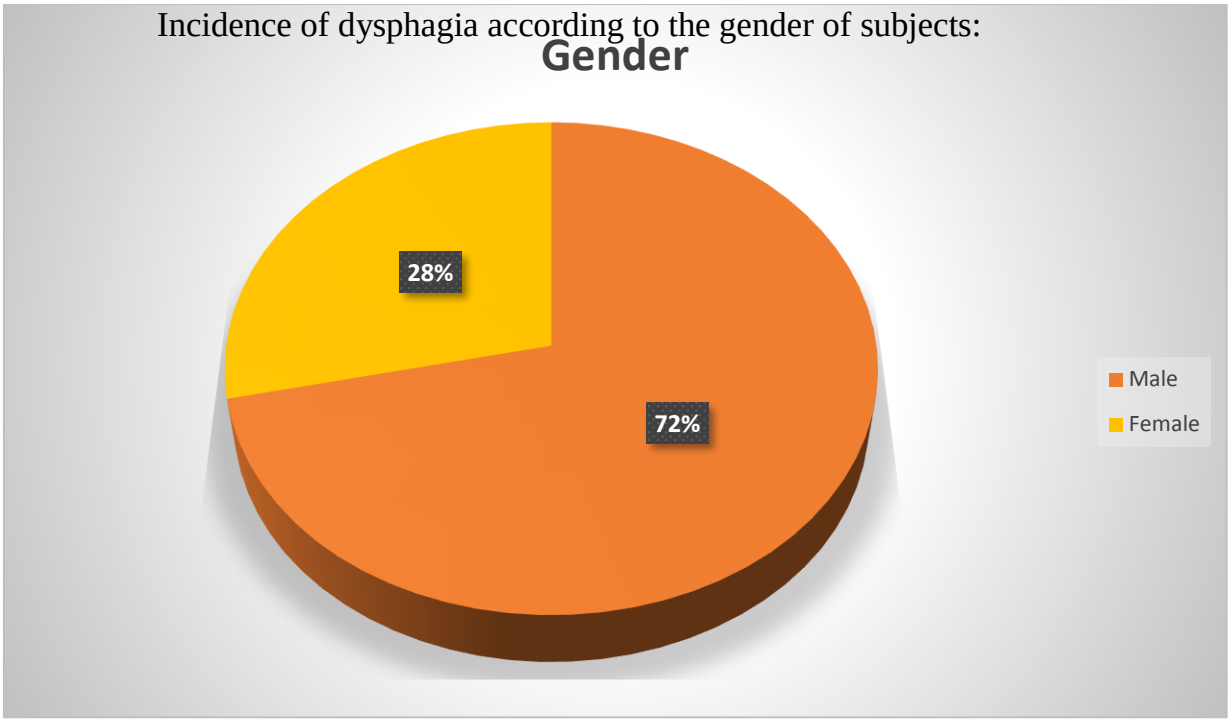


Table-3: Incidence of dysphagia according to the occupation of subjects:

Occupation	No	%	Age (years)		F	Sig	Comparison of age b/W Occupation
			Mean	SD			
Sedentary lifestyle	35	37.2	51.6	11.9	5.423	P<0.01	Sedentary lifestyle & Moderate work = NS
Moderate Work	14	14.9	58.6	9.6			Moderate Work & heavy manual labour = NS
Heavy Manual Labour	45	47.9	59.0	9.4			Heavy Manual Labour & Sedentary lifestyle = S
Total	94	100.0	56.2	10.9			

In this study incidence of dysphagia in respect of their occupation was stated in the above table-3. The sedentary, moderate and heavy occupation subjects were 37.2%, 14.9% and 47.9 % respectively. The mean ages of the Sedentary, Moderate and Heavy occupational subjects were 51.6±11.9, 58.6±9.6 and

59.0±9.4 years respectively. The mean ages of difference between sedentary and moderate was not statistically significant (P>0.05) and moderate and heavy mean ages difference was also not statistically significant (P>0.05). The mean ages of sedentary and heavy occupational subjects was statistically significant (P<0.05).

: Incidence of dysphagia according to the occupation of subjects

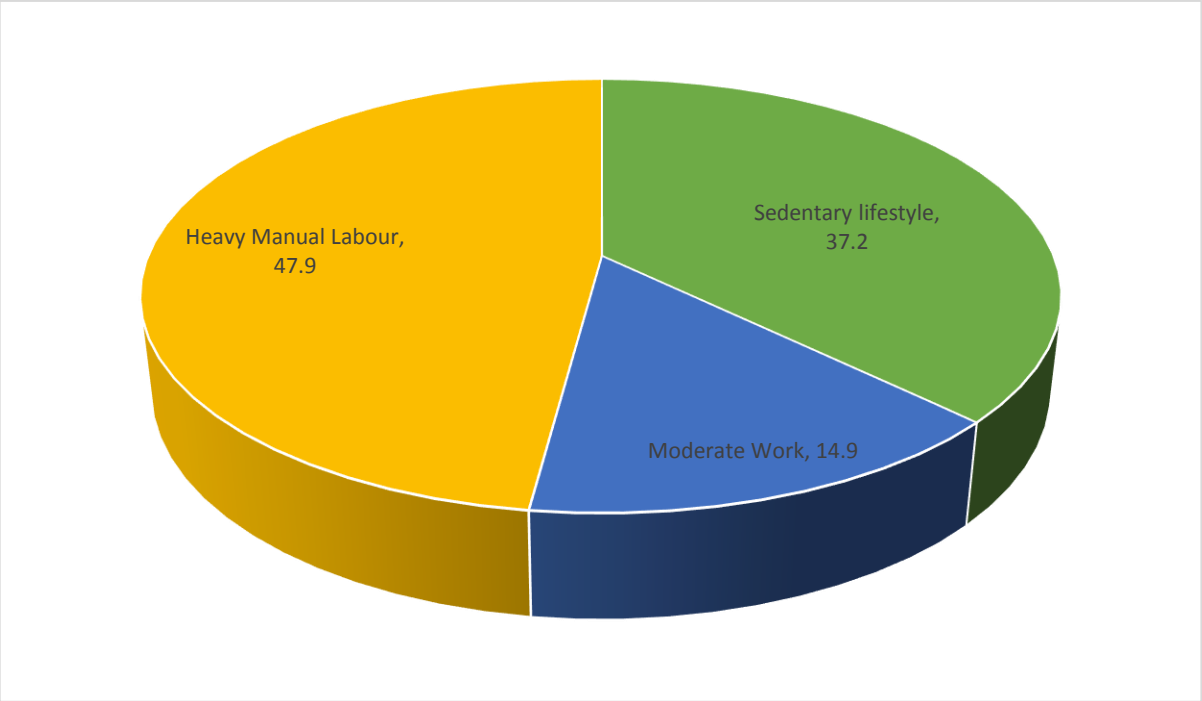


Table-4: Comparison of dysphagia incidence between age and gender:

Gender	Age group (years)						χ^2	df	Sig
	30-59		60-79		Total				
	No	%	No	%	No	%			
Male	29	30.9	38	40.4	67	71.3	1.968	1	P>0.05
Female	16	17.0	11	11.7	27	28.7			
Total	45	47.9	49	52.1	94	100.0			

In this study incidence of dysphagia between the male and female of adult and geriatrics subjects was compared in the above table -4. There was significant correlation of dysphagia between the gender and geriatric subjects (P>0.05).

: Comparison of dysphagia incidence between age and gender

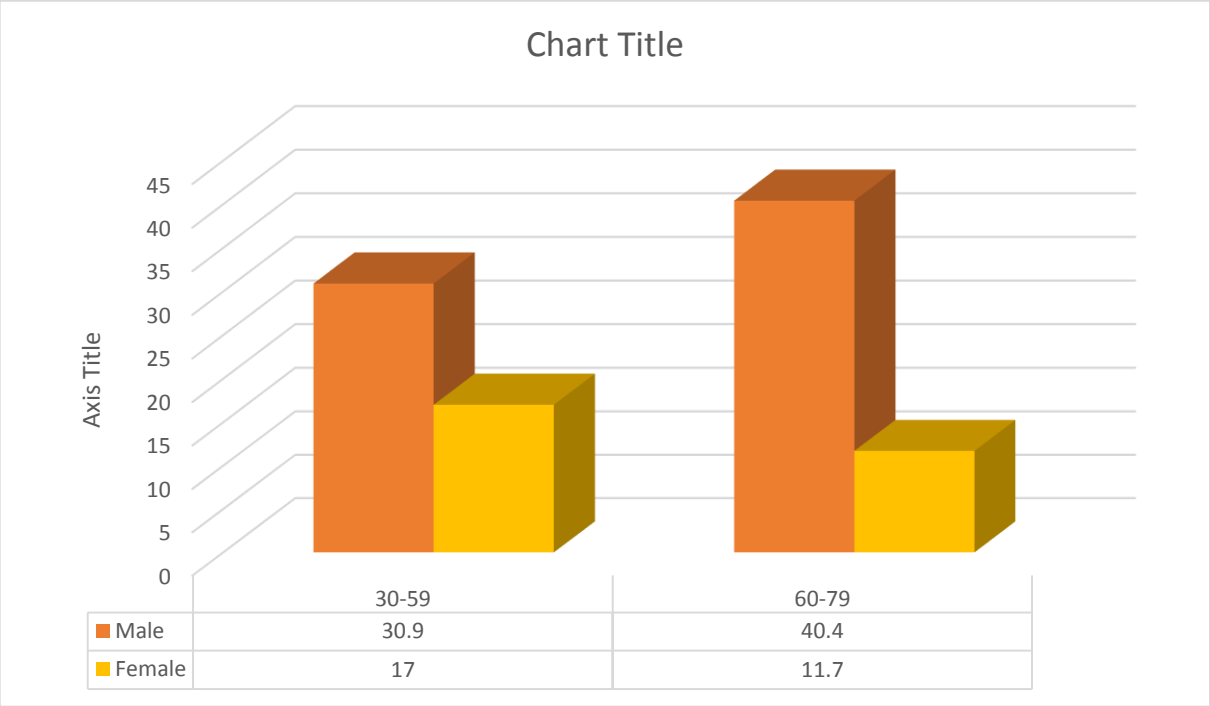


Table 4A:

AGE GROUP	MALE	FEMALES
30 TO 59YRS	**29**	**16**
60 TO79 YRS	**38**	**11**
TOTAL	**67**	**27**

In this study Table 4A, incidence of dysphagia and carcinoma were more pronounced in males in age group of 60 to79 yrs.

Table-5: Comparison of dysphagia incidence between gender and occupation:

Occupation	Gender						χ^2	df	Sig
	Male		Female		Total				
	No	%	No	%	No	%			
Sedentary lifestyle	15	16.0	20	21.3	35	37.2	22.051	2	P<0.001
Moderate work	12	12.8	2	2.1	14	14.9			
Heavy manual labourer	40	42.8	5	5.3	45	47.9			
Total	67	71.3	27	28.7	94	100.0			

In this study the incidence of dysphagia between the gender and occupation of subjects was compared in the above table -5. The result revealed that there was statistically very high significant association between the gender and occupation subjects (P>0.05).

: Comparison of dysphagia incidence between gender and occupation

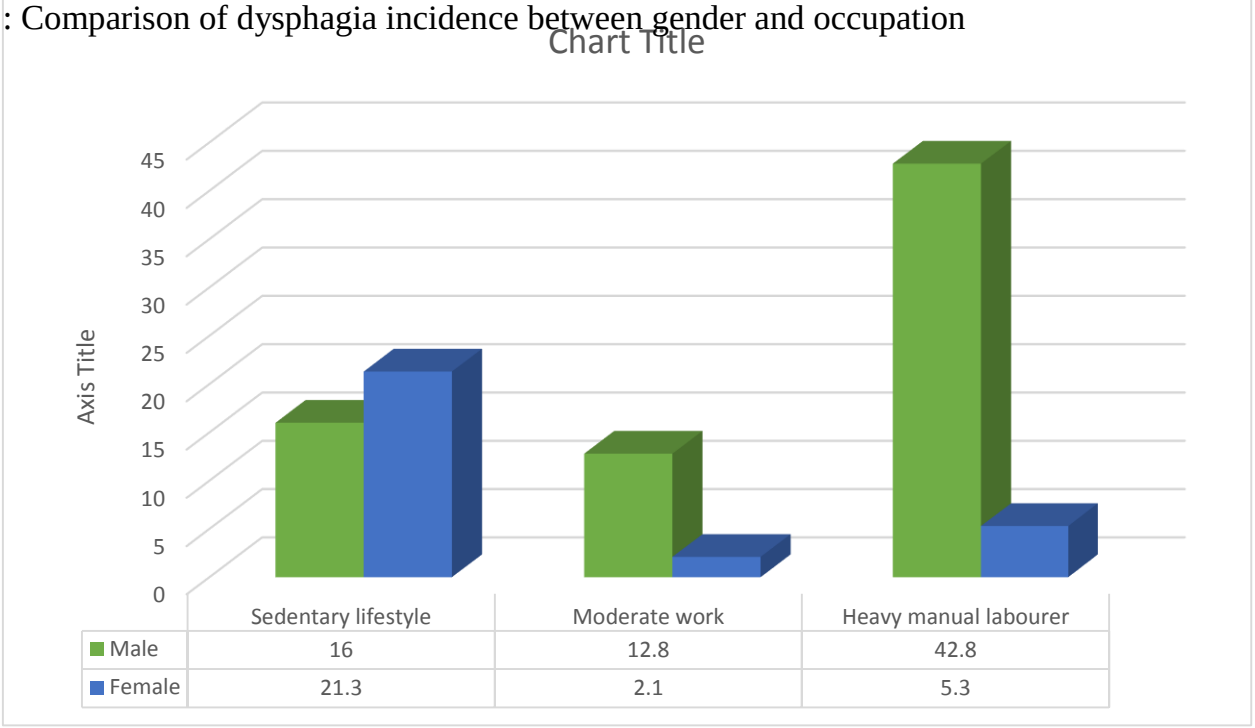


Table-6: Behavioural habits impact on the incidence of dysphagia:

Habits	Yes/No	Number	%	χ^2	df	Sig
Smoking	Yes	57	60.6	4.255	1	P<0.05
	No	37	39.4			
Alcohol	Yes	53	56.4	1.532	1	P>0.05
	No	41	43.6			
Betel nut	Yes	38	40.4	3.447	1	P>0.05
	No	56	59.6			
	Total	94	100.0			

In this study subjects habits such as smoking; alcoholism and betel nut chewing were analyzed to study the impact on the incidence and showed in the table -6. The alcoholism and betel nut chewing had little significance with incidence (P>0.05) of dysphagia , unlike smoking habit which was significantly associated with the incidence of dysphagia (P<0.05).

: Behavioural habits impact on the incidence of dysphagia

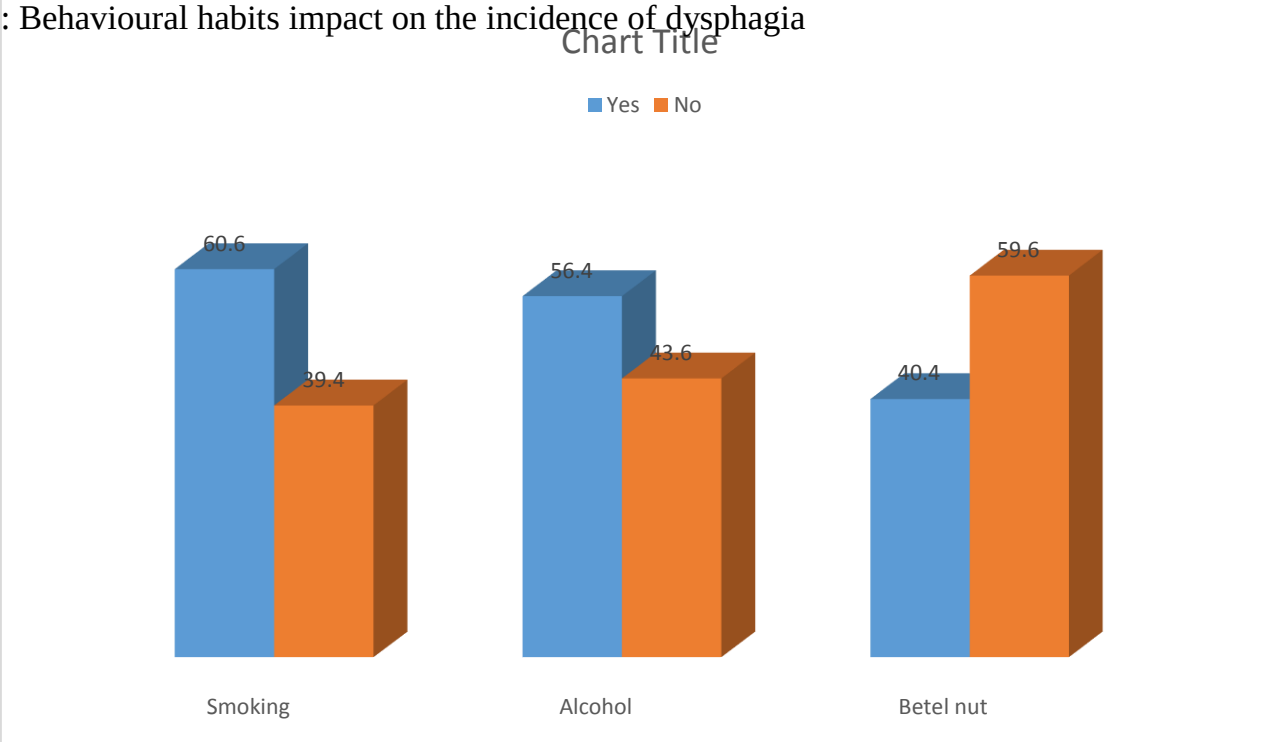


Table- 7: Clinical findings correlation with incidence of dysphagia:

Clinical Findings	Yes/No	Number	%	χ^2	df	Sig
Dysphagia type	Solid	81	86.2	49.191	1	P<0.001
	Solid+ liquid	13	13.8			
Loss of weight	Yes	13	86.2	49.191	1	P<0.001
	No	81	13.8			
Vomiting	Yes	16	17.0	40.894	1	P< 0.001
	No	78	83.0			
	Total	94	100.0			

The clinical findings namely dysphagia type, loss of weight, clinical mass and vomiting were analysed and correlated with incidence in the above table -7. The solid dysphagia was 86.2% and solid + liquid were 13.8%. The difference was statistically highly significant (P<0.001). All the subjects (100%) were loss of appetite. The loss of weight was 86.2% and no loss of weight was 13.8% . The difference of incidences was statistically very highly significant (P<0.001). The vomiting was 17.0% and no vomiting was 83.0%. The difference of vomiting episodes was statistically very highly significant (P<0.001).

TABLE 8: BENIGN CAUSES OF DYSPHAGIA OBSERVED IN THE STUDY

Serial number	Endoscopy findings	Frequency	Percentage
1	OESOPHAGITIS	5	5.3
2	LAX OESOPHAGEAL SPHINCTER	8	8.5
3	POLYP OESOPHAGOGASTRIC JUNCTION	1	1.2
4	GASTRO OESOPHAGEAL REFLUX DISEASE	2	2.1
5	HIATUS HERNIA	5	5.3
6	OESOPHAGEAL VARICES	1	1.2
7	OESOPHAGEAL WEB	3	3.1
8	OESOPHAGEAL STRICTURE	2	2.1
9	OESOPHAGEAL ULCER	1	1.2
10	OESOPHAGEAL CANDIDIASIS	7	7.4
11	ACHALASIA CARDIA	1	1.1
TOTAL		36	38.5

BENIGN CAUSES OF DYSPHAGIA OBSERVED IN THE STUDY

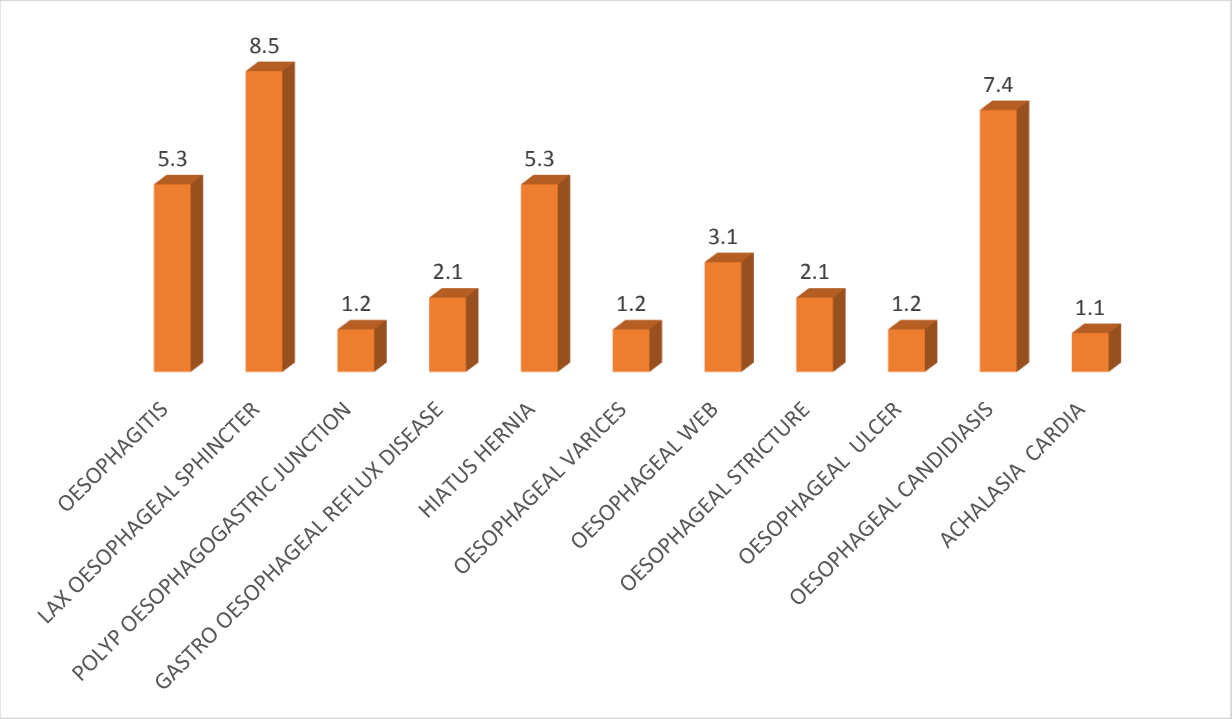


TABLE 9: MALIGNANT CONDITIONS OF DYSPHAGIA OBSERVED IN THE STUDY

1	CRICOPHARYNGEAL GROWTH	3	2.1
2	SUPRAGLOTTIC GROWTH	3	3.1
3	CARCINOMA OESOPHAGUS	26	27.6
	A) UPPER THIRD	2	
	B) MIDDLE THIRD	8	
	C)LOWER THIRD	16	
4	OESOPHAGOGASTRIC JUNCTION GROWTH	14	14.8
TOTAL		46	47.6

TABLE 10: ENDOSCOPY FINDINGS:

Serial number	Endoscopy findings	Frequency	Percentage
	NORMAL	12	12.8
2	OESOPHAGITIS	5	5.3
3	LAX OESOPHAGEAL SPHINCTER	8	8.5
4	POLYP OESOPHAGOGASTRIC JUNCTION	1	1.2
5	GASTRO OESOPHAGEAL REFLUX DISEASE	2	2.1
6	HIATUS HERNIA	5	5.3
7	OESOPHAGEAL VARICES	1	1.1
8	OESOPHAGEAL WEB	3	3.1
9	OESOPHAGEAL STRICTURE	2	2.1
10	OESOPHAGEAL ULCER	1	1.2
11	OESOPHAGEAL CANDIDIASIS	7	7.4
12	ACHALASIA CARDIA	1	1.1
13	CRICOPHARYNGEAL GROWTH	3	3.1
14	SUPRAGLOTTIC GROWTH	3	3.1
15	CARCINOMA OESOPHAGUS	26	27.6
	UPPER THIRD	2	
	MIDDLE THIRD	8	
	LOWER THIRD	16	
16	OESOPHAGOGASTRIC JUNCTION GROWTH	14	14.8
TOTAL		94	

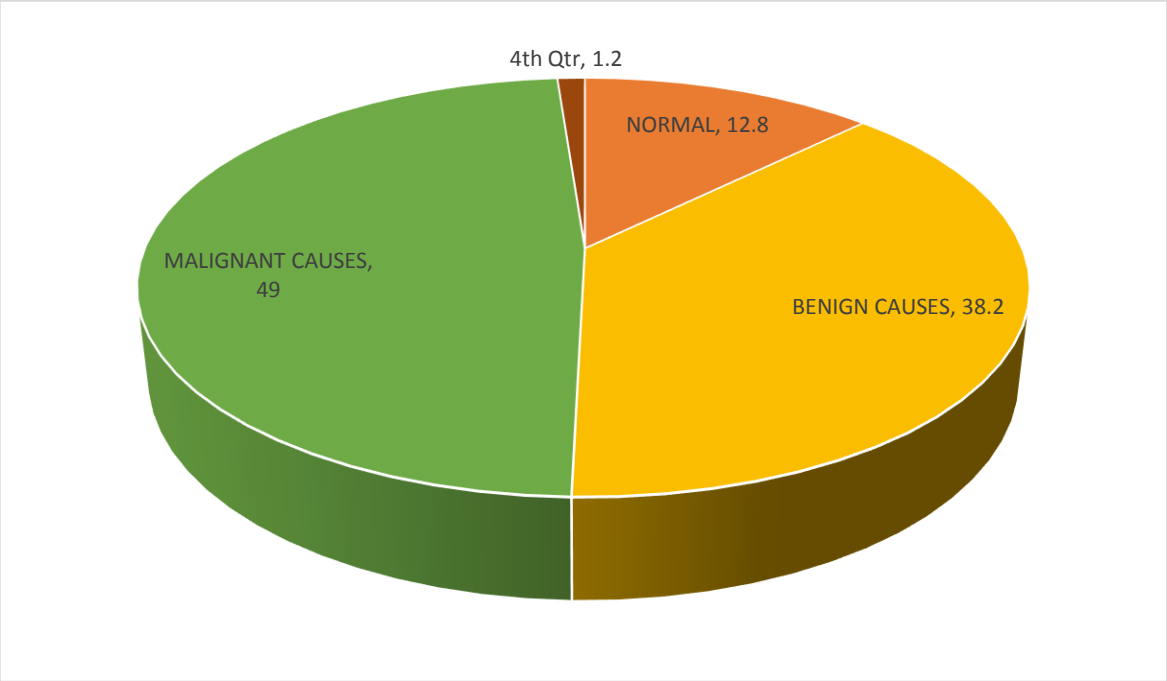
The endoscopic findings are furnished in the above table-8. The major finding was carcinoma oesophagus which was 27.6% .Followed by carcinomatous oesphagogastric junction growth 14.8 % .LAX Oesophageal Spinchter was 13.8%. Hiatus hernia was present in 5.8 % individuals.other causes for dysphagia were minimal.

Table-11: Comparison of Carcinoma and other findings with normal subjects:

DYSPAHAGIA	NO OF CASES	PERCENTAGE
NORMAL	**12**	**12.8**
BENIGN CAUSES	**36**	**38.2**
MALIGNANT CAUSES	**46**	**49**
TOTAL	**94**	**100**

The findings of Carcinoma and others were compared with normal dysphagia subjects in table-11. The findings of carcinoma and other disorders were statistically very highly significantly from normal ($P<0.001$).

Comparison of Carcinoma and other findings with normal subjects



DISCUSSION POINTS AND CONCLUSION

The dysphagia incidence between the adult male and elderly male subjects were 43.2% and 56.7% with higher incidence in elderly males.

In females incidence of dysphagia between adult and elderly females were not significant.

In this study the incidence of the males were significantly greater than females. The mean age of incidence between the genders was not significantly differed.

The mean age of sedentary and moderate subjects was not significantly differed. The sedentary subjects mean age was lesser than the heavy occupational subjects.

The incidence of dysphagia was very strongly associated with male heavy workers and sedentary female workers.

The smokers were significantly more affected than the non smokers. There was no much difference between the alcoholics and non alcoholics. The betel nut users and non users were also not significantly differed.

The solid dysphagia was significantly more than the solid + liquid dysphagia. The non weight loss was significantly greater than the weight loss.. The patients without vomiting were significantly greater than the vomiting.

The major finding of the OGD was carcinoma and related symptoms. Next to carcinoma oesophagus was gastro oesophageal junction growth. Next to gastro oesophageal junction growth was LAX lower oesophageal Spinchter.

The other findings were minimal.

நோயாளிகளுக்கு அறிவிப்பு மற்றும் ஒப்புதல் படிவம்
(மருத்துவ ஆய்வில் பங்கேற்பத்திற்கு)

ஆய்வு செய்யப்படும் தலைப்பு:
பங்கு பெறுவரின் பெயர்:
பங்கு பெறுவரின் வயது:

		பங்கு பெறுவர் இதனை ✓ குறிக்கவும்
1.	நான் மேலே குறிப்பிட்டுள்ள மருத்துவ ஆய்வின் விவரங்களை படித்து புரிந்து கொண்டேன். என்னுடைய சந்தேகங்களை கேட்கவும், அதற்கான தகுந்த விளக்கங்களை பெறவும் வாய்ப்பளிக்கப்பட்டுள்ளது என அறிந்து கொண்டேன்.	☐
2.	நான் இவ்வாய்வில் தன்னிச்சையாக தான் பங்கேற்கிறேன். எந்த காரணத்தினாலோ எந்த கட்டத்திலும், எந்த சட்ட சிக்கலுக்கும் உட்படாமல் நான் இவ்வாய்வில் இருந்து விலகி கொள்ளலாம் என்றும் அறிந்து கொண்டேன்.	☐
3.	இந்த ஆய்வு சம்பந்தமாகவோ, இதை சார்ந்து மேலும் ஆய்வு மேற்காள்ளும் போதும் இந்த ஆய்வில் பங்குபெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளை பார்ப்பதற்கு என் அனுமதி தேவையில்லை என அறிந்து கொள்கிறேன். நான் ஆய்வில் இருந்து விலகிக் கொண்டாலும் இது பொருந்தும் என அறிகிறேன்.	☐
4.	இந்த ஆய்வின் மூலம் கிடைக்கும் தகவலையோ, முடிவையோ பயன்படுத்திக் கொள்ள மறுக்க மாட்டேன்.	☐
5.	இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக் கொள்கிறேன் எனக்கு கொடுக்கப்பட்டஅறிவுரைகளின் படி நடந்து கொள்வதுடன், ஆய்வை மேற்கொள்ளும் மருத்துவ அணிக்கு உண்மையுடன் இருப்பேன் என்று உறுதியளிக்கிறேன். என் உடல் நலம் பாதிக்கப்பட்டாலோ, அல்லது எதிர்பாராத, வழக்கத்திற்கு மாறான நோய்குறி தென்பட்டாலோ உடனே இதை மருத்துவ அணியிடம் தெரிவிப்பேன் என உறுதி அளிக்றேன்.	☐

பங்கேற்பவரின் கையொப்பம் / ..... இடம் .....
கட்டைவிரல் ரேகை
பங்கேற்பவரின் பெயர் மற்றும் விலாசம்
.....
ஆய்வாளரின் கையொப்பம் /..... இடம்
.....
ஆய்வாளரின் பெயர்
.....
மையம்
.....
கல்வியறிவு இல்லாதவற்கு (கைரேகை வைத்தவர்களுக்கு) இது அவசியம் தேவை
சாட்சியின் கையொப்பம் /..... இடம்
.....
பெயர் மற்றும் விலாசம் .....
.....

PROFORMA

- **PATEINT PARTICULARS:**
- **NAME,AGE,SEX,OCCUPATION,ADDRESS.**
- **CHEIF COMPLAINTS AND HISTORY OF PRESENT ILLNESS,DURATION OF SYMTOMS,MODE OF ONSET,PROGRESSION OF ILLNESS,H/O LOSS OF APETITE & WEIGHT,H/O ANY MASS.**
- **PAST HISTORY: H/O PRESENT ILLNESS, H/O DIABETES MELLITUS, HYPERTENSION, CEREBROVASCULAR ACCIDENT, ISCHAEMIC HEART DISEASE, H/O MEDICATIONS, H/O ANY SURGERY IN THE PAST, H/O RADIATION.**
- **PERSONAL HISTORY: OCCUPATION,SMOKING, ALCOHOL INTAKE, TOBACCO CHEWING, H/O SEXUAL EXPOSURE.**
- **FAMILY HISTORY: H/O MALIGNANCIES AMOMG THE FAMILY MEMBERS, H/O SIMILAR ILLNESS, CO-MORBID CONDITIONS.**
- **GENERAL EXAMINATION: BMI, nutrition, anaemia, glossitis, ear nose throat, cardiovascular system, respiratory system.**
- **LOCAL EXAMINATION: per abdomen, per rectal.**
- **Investigations:**
- **Complete blood count**
- **Renal function test,random blood sugar**

- **Liver function test: serum bilirubin, protein, SGOT,SGPT,ALP.**
- **BLEEDING TIME,CLOTTING TIME.**
- **HIV, HBSAG SCREENING.**
- **ULTRASONOGRAM ABDOMEN.**

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Sl No	Age	Sex	Occupation	Smoking	Alcohol	Betal	Dysphagia	Loss Apiti	Loss Wt	Vomitting	Dyspahagia Liq	OGD	OGD Findings
1	65	1	FARMER	1	1	1	2	1	1	2	1	1	1,20
2	67	1	COOLIE	1	1	1	2	1	2	1	1	1	1
3	55	1	DRIVER	1	1	1	1	1	2	1	1	1	8
4	60	2	H.WIFE	2	2	2	1	1	2	1	2	1	8,10
5	78	1	MERCHANT	1	1	2	1	1	2	1	2	1	8,10
6	62	1	SREVER	1	1	1	1	1	2	1	2	1	8,10
7	60	2	COOLIE	2	2	2	1	1	2	2	1	1	11
8	70	2	H.WIFE	1	1	2	1	1	2	2	1	1	5
9	46	1	MERCHANT	1	2	1	1	1	2	2	1	1	1
10	40	1	COOLIE	1	1	1	1	1	2	2	1	1	4
11	60	1	COOLIE	1	1	2	1	1	2	2	1	1	12
12	45	1	TEACHER	1	1	2	1	1	2	1	2	1	8,10
13	51	1	MERCHANT	1	1	2	2	1	2	2	1	1	5,14
14	56	2	H.WIFE	2	2	2	1	1	2	2	2	1	10
15	60	1	COOLIE	2	2	2	1	1	2	2	1	1	15
16	65	1	PLUMBER	1	1	2	1	1	2	2	2	1	10
17	54	1	MERCHANT	1	2	2	1	1	2	2	2	1	10,20
18	65	1	TAILOR	1	1	1	1	1	2	1	2	1	8,10
19	55	2	H.WIFE	2	2	2	1	1	2	2	2	1	3,4
20	45	1	SREVER	1	1	1	1	1	2	1	1	1	8,10
21	50	2	VENDOR	2	2	2	1	1	2	1	2	1	8,10
22	62	1	COOLIE	1	2	1	1	1	2	1	2	1	8
23	63	1	FARMER	1	1	1	1	1	2	1	1	1	8,10
24	35	2	H.WIFE	2	2	2	1	1	2	2	2	1	2,9
25	38	1	COOLIE	1	1	1	1	1	2	2	2	1	1
26	64	1	COOLIE	2	2	2	1	1	2	1	2	1	5,8,10
27	31	1	MERCHANT	1	1	2	1	1	2	2	1	1	2,5
28	60	1	COOLIE	1	1	1	1	1	2	2	1	1	5,7

Sl No	Age	Sex	Occupation	Smoking	Alcohol	Betal	Dysphagia	Loss Apiti	Loss Wt	Vomitting	Dyspahagia Liq	OGD	OGD Findings
29	63	2	H.WIFE	2	2	2	1	1	2	1	1	1	5,8,20
30	70	1	COOLIE	1	1	1	1	1	2	2	1	1	5,15
31	50	1	COOLIE	1	1	1	1	1	2	2	1	1	2
32	69	1	COOK	1	1	1	1	1	2	1	1	1	5,8
33	52	1	COOLIE	1	1	2	1	1	2	2	1	1	12
34	40	2	H.WIFE	2	2	2	1	1	2	2	1	1	1
35	70	1	DRIVER	1	1	2	1	1	2	2	1	1	1,17
36	52	1	COOLIE	1	1	1	1	1	2	2	2	1	4,5,10
37	62	2	H.WIFE	2	2	2	1	1	2	2	1	1	9,20
38	67	1	COOK	2	2	2	2	1	2	2	2	1	5,10
39	50	2	MERCHANT	2	2	2	1	1	2	1	1	1	5,8
40	50	2	PLUMBER	2	2	2	1	1	2	2	1	1	11
41	55	1	VENDOR	1	1	1	1	1	2	2	1	1	11,20
42	55	1	COOLIE	1	1	1	2	1	2	2	1	1	6
43	60	2	H.WIFE	2	2	2	1	1	2	2	1	1	1
44	50	2	H.WIFE	2	2	2	1	1	2	2	1	1	18
45	35	2	H.WIFE	2	2	2	1	1	2	2	1	1	5,14
46	70	1	COOK	1	1	2	1	1	2	2	1	1	11
47	35	1	PLUMBER	1	1	2	2	1	2	2	1	1	5
48	45	1	H.WIFE	2	2	2	1	1	2	2	1	1	11
49	50	2	H.WIFE	2	2	2	1	1	2	2	1	1	1
50	35	1	MERCHANT	1	1	2	2	1	2	2	1	1	18
51	62	2	COOLIE	2	2	2	1	1	2	2	1	1	1
52	68	1	COOLIE	1	1	1	1	1	2	1	1	1	8
53	60	1	COOLIE	1	2	1	1	1	2	2	1	1	14
54	60	1	TEACHER	2	2	2	2	1	2	2	1	1	19
55	66	1	COOLIE	2	2	2	1	1	2	2	1	1	1
56	48	1	COOLIE	1	1	1	1	1	2	2	2	1	20

Sl No	Age	Sex	Occupation	Smoking	Alcohol	Betal	Dysphagia	Loss Apiti	Loss Wt	Vomitting	Dyspahagia Liq	OGD	OGD Findings
57	65	1	COOLIE	1	1	2	1	1	2	2	1	1	21,22
58	69	1	COOLIE	1	1	1	1	1	2	2	1	1	1
59	55	2	H.WIFE	2	2	2	1	1	2	2	1	1	11
60	72	1	COOLIE	1	1	1	1	1	2	2	2	1	11
61	40	1	COOLIE	1	1	1	2	1	2	2	1	1	11
62	47	1	TAILOR	2	2	1	1	1	2	2	2	1	1
63	45	2	H.WIFE	2	2	2	1	1	2	2	2	1	10
64	65	1	FARMER	2	2	2	1	1	2	2	2	1	2,4
65	67	1	COOLIE	1	1	1	1	1	1	2	1	1	2
66	55	1	DRIVER	1	1	2	1	1	1	2	1	1	8
67	60	2	H.WIFE	2	2	2	2	1	1	2	1	1	8,10
68	78	1	MERCHANT	1	1	2	1	1	1	2	1	1	8,10
69	62	1	SREVER	1	1	1	1	1	2	2	1	1	8,10
70	60	2	COOLIE	1	1	1	1	1	2	2	2	1	11
71	70	2	COOLIE	2	2	2	1	1	2	2	2	1	6
72	46	1	MERCHANT	1	1	2	1	1	2	2	2	1	2
73	40	1	COOLIE	1	1	1	1	1	2	2	2	1	5
74	60	1	COOLIE	1	1	1	1	1	1	2	2	1	12
75	45	1	TEACHER	2	2	2	1	1	2	2	1	1	8,10
76	51	1	MERCHANT	1	2	2	1	1	2	2	2	1	6
77	56	2	H.WIFE	2	2	2	1	1	2	2	2	1	10
78	60	1	COOLIE	1	1	1	1	1	2	2	2	1	15
79	65	1	PLUMBER	1	1	2	1	1	2	2	2	1	10
80	54	1	MERCHANT	1	1	2	1	1	1	2	2	1	10,20
81	65	1	TAILOR	1	1	1	1	1	2	2	1	1	8,10
82	55	2	H.WIFE	2	2	2	2	1	1	2	2	1	4
83	45	1	SREVER	1	1	2	1	1	1	2	1	1	8,10
84	50	2	VENDOR	2	2	2	1	1	1	2	1	1	8,10

Sl No	Age	Sex	Occupation	Smoking	Alcohol	Betal	Dysphagia	Loss Apiti	Loss Wt	Vomitting	Dyspahagia Liq	OGD	OGD Findings
85	62	1	COOLIE	1	1	1	1	1	1	2	1	1	8
86	63	1	FARMER	1	1	1	1	1	2	2	1	1	8,10
87	35	2	H.WIFE	2	2	2	1	1	2	2	2	1	3
88	64	1	COOLIE	1	1	1	1	1	2	2	1	1	6
89	31	1	MERCHANT	2	1	2	1	1	2	2	2	1	3,6
90	60	1	COOLIE	1	1	1	1	1	1	2	2	1	6
91	63	2	H.WIFE	2	2	2	1	1	2	2	1	1	6
92	70	1	COOLIE	1	1	2	1	1	2	2	2	1	6
93	50	1	COOLIE	2	2	1	2	1	1	2	2	1	3,6
94	69	1	COOK	2	2	1	2	1	2	2	1	1	6
		1=M,2=M		1=Y,2=No	1=Y,2=No	1=Y,2=N	1=Soli,2=S+L	1=Y,2=No	1=Y,2=	1=Y,2=No	1=Y,2=No	1=Y,2=I	See Results